

**INTERIM REPORT OF THE  
JOINT SUBCOMMITTEE STUDYING**

# **The Commonwealth's Tidal Shoreline Erosion Policy**

**TO THE GOVERNOR AND  
THE GENERAL ASSEMBLY OF VIRGINIA**



## **House Document No. 44**

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**REPRINT**

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Interim Report of the  
Joint Subcommittee Studying  
the Commonwealth's Tidal Shoreline  
Erosion Control Policy  
to the Governor and General Assembly of Virginia  
April, 1988

To: Honorable Gerald L. Baliles, Governor,  
and  
The General Assembly of Virginia

I. Introduction

The joint subcommittee to study the Commonwealth's tidal shoreline erosion policy was established by the 1987 Session of the General Assembly (House Joint Resolution No. 46). It was requested to study whether the Commonwealth's shoreline erosion policy reflects an appropriate balance between the rights of individual property owners and the Commonwealth's responsibility to protect the environment. During its first year the subcommittee devoted a substantial amount of its time to receiving testimony detailing the current shoreline erosion control policies and programs of Virginia and other states.

The subcommittee continued its work during 1988. House Joint Resolution No. 226 requested that the subcommittee focus on the following issues:

1. The feasibility of initiating a comprehensive shoreline erosion policy for the Commonwealth;
2. Statutory definitions of wetlands, sand dune, and barrier islands;
3. The capability of state agencies to implement the intent of the General Assembly regarding coastal shoreline protection; and
4. The responsibility of the Commonwealth to help protect private shoreline property and funding alternatives for public and private beach protection programs.

In response to the charge of the enabling resolution the subcommittee spent a considerable portion of its time during the year in briefings and discussions with technical experts in an effort to identify those factors which are essential in the formulation of an effective shoreline management policy. Scientists with the Virginia Institute of Marine Science's Center for Estuarine Resource Management and Policy provided testimony which described (i) those natural processes which shape Virginia shoreline, (ii) problems inherent in the current management programs, and (iii) how these problems might be resolved through the development of new policies. In addition, the subcommittee received a status report on the state's new erosion control initiatives and a description of financial incentives being offered by the State of Maryland to property owners for controlling and mitigating erosion.

## II. Subcommittee Deliberations

### A. New Erosion Control Initiatives

According to a Mr. Roland Geddes, Director of the Division of Soil and Water Conservation, Virginia Department of Conservation and Historic Resources, the agency has initiated two new erosion protection programs. The Shoreline Protection Cost-Share Program is a pilot program designed to provide financial assistance to private landowners who wish to install shoreline erosion protection structures (e.g. groins, bulkheads, etc.). In exchange for the financial assistance from the Commonwealth, applicants are required to grant a perpetual conservation easement on the real estate to be protected to the Department of Conservation and Historic Resources, the Virginia Outdoors Foundation, or another approved governmental body or private conservation organization.

The program offers fifty percent cost-share support for shoreline stabilization projects up to a maximum of \$50,000 per property owner. Under the program's terms, cost-sharing is authorized for the cost of construction, site preparation, permits, design plans and specifications, and obtaining conservation easement appraisals for sites approved for shoreline protection measures. Maintenance costs of existing structures or structures installed under this program are not eligible for cost-sharing. In order for a project to qualify for cost-sharing the value of the conservation easement to be granted must be greater than or equal to the amount of cost-share funds to be provided to the applicant.

Due to the limited funds available to the program (\$156,000 was set aside by the Council on the Environment from federal coastal zone management program funds), the Division has established four sets of criteria to be used in project selection: sediment loading (shoreline erosion rate, bank height, shoreline length and sediment load rate), the potential extent of property loss due to erosion (land use and existing structures), living resources in the area under consideration (shellfish beds, spawning areas, upland habitat, etc.) and the value and type of easement to be granted. By offering financial incentives to reduce development adjacent to tidal waters, the Department hopes to conserve agricultural and forestal lands which are important in providing watershed protection and maintaining wildlife habitat.

Beginning in 1988, a program for the vegetative stabilization of marsh fringe areas will offer financial assistance to private landowners for the establishment of natural and environmentally acceptable fringe buffers of selected marsh grasses for stabilization protection on tidal waters. Because most Virginia shoreline cannot be adequately protected through this method due to wave size, this program is predicted to have limited application. The program is to be administered by local soil and water conservation districts, with fifty percent cost-sharing for all components needed to establish marsh fringe (up to \$3,500 maximum per project). No more than ten percent of each district's annual allocated funds may be expended for projects involved in this program. Funds provided to a landowner through this program constitute a one-time incentive payment and no reapplication is permitted should the project fail or be destroyed.

### B. Beach Replenishment Efforts

Jack Frye, the Executive Director of the Board on Conservation and Development of Public Beaches, provided the subcommittee with an update on the Baltimore Harbor Tunnel deepening project. In 1981, Maryland and Virginia agreed that 600,000 cubic yards of suitable dredged material from the Cape Henry channel could be used by Virginia for beach nourishment projects at no charge. There has been a disagreement between Virginia and Maryland as to what constitutes 600,000 cubic yards of suitable dredged material. This is because the natural sand which Virginia wishes to replenish which is located at sites in Norfolk and Virginia Beach is a courser material than the dredge material which came from the Baltimore Harbor project. Studies indicate that it would be necessary to place over twice as much of this dredged material at Virginia Beach in order to ensure that it eroded at the same rate as the courser, natural sand located at the Virginia Beach site. According to Mr. Frye, there will have to be an agreement reached in regard to the meaning of "600,000 cubic yards of suitable dredged material" soon, because the dredging is scheduled to commence in July of 1988.

Virginia and the Army Corps of Engineers, Norfolk District, have entered into a memorandum of understanding concerning the Virginia Beach and Norfolk sites and the suitability of the Baltimore Harbor dredged material for those sites. The Corps has also conducted a number of 933 storm damage reduction benefit studies on both sites to determine whether the required minimal one-to-one cost benefit ratio exists. The results indicated that the Virginia Beach site qualified and will therefore be eligible for the 50/50 cost share, while the Norfolk site will not. Currently, the York Spit channel is being investigated to determine the characteristics of its dredged material. Virginia has requested that the Corps conduct a 933 study of that material for the Virginia Beach and Norfolk sites in hopes that federal cost-sharing will be available for that material.

The Commonwealth has also initiated a new process for the equitable allocation of state-owned sand resources to localities. The new procedure will enable the state to work with local planners on long range planning and the allocation of sand resources among localities. This procedure includes completing the "Sand Evaluation Questionnaire" by the locality, technical assessments of the proposed project site by the Division of Soil and Water Conservation and the Virginia Institute of Marine Science, and a public hearing held by the Public Beach Board. The Board's allocation recommendations are then sent to the Secretary of Natural Resources for final action.

The subcommittee was also informed of two feasibility studies currently being conducted concerning the Commonwealth's sand resources. The Department of Conservation and Historic Resources is working with the City of Hampton and the Virginia Institute of Marine Science to determine the feasibility of taking dredged material from the lower Chesapeake Bay (Thimble Shoals) for use by the city in beach replenishment projects. Another study is being conducted on the possibility of near shore stockpiling of dredged material. The sand stored at such a site could serve as breakwaters to retard shoreline erosion in that area, or in the case of beach quality sand, the site could serve as a storage location until the sand can be used as part of a beach replenishment project.

### C. Maryland's Shore Erosion Control Programs

The subcommittee received testimony from officials of Maryland's Department of Natural Resources who described their state's shoreline erosion programs. Maryland has approximately 4,360 miles of shoreline along the Chesapeake Bay and its tributaries, 1,340 miles of which are eroding at various rates. Approximately 325 acres of land are lost by Maryland each year due to shoreline erosion. Shoreline erosion problems were first officially recognized by the Maryland General Assembly in 1929, but a comprehensive study of these problems was not conducted until 1947. In 1968, Maryland initiated its Shore Erosion Control Program, which in 1985 became part of Maryland's Chesapeake Bay initiatives. Although the program began as a grant program, in 1971 it changed to a revolving loan program. The program's current annual operating budget of \$500,000 is funded by an allocation of \$3.25 million in state funds each year.

The program provides twenty-five-year interest free loans to qualified applicants for the purpose of creating structures to impede shoreline erosion. These loans cover 100 percent of the first \$50,000 of project construction costs, fifty percent of the next \$20,000, twenty-five percent of the next \$20,000, and ten percent of the portion of construction costs exceeding \$90,000. The costs involved in developing plans and specifications for the proposed structure are paid entirely by the state. In exchange for making the loan, the state is given a lien on the applicant's property. No loan is made unless the Department is assured that the improvement constructed through the use of the borrowed funds will exist for at least fifteen years. The applicant is responsible for the continued maintenance of the structure.

The program consists of six phases. The preliminary phase includes the property owner's initial inquiry and a site visit by Department personnel. During the second phase, the property owner's application is received, reviewed and assigned a priority based on the extent of the

erosion problem and availability of funds. The next phase includes a meeting with the property owner to discuss the proposed work. The fourth phase is the design phase, which includes the receipt by the Department of plans, specifications, and permits and the awarding of an engineering contract. During the fifth phase a construction contract is awarded, the notice of lien is recorded, construction is performed and the project completed. The final phase is loan repayment, in which the property owner is billed annually.

In 1985, Maryland strengthened its shoreline erosion control efforts by initiating the Nonstructural Shoreline Erosion Control Program. Begun as a part of Maryland's Chesapeake Bay Restoration Program, this program provides 50/50 matching grants to property owners to stabilize eroding shorelines through vegetative techniques. The Maryland General Assembly has appropriated \$250,000 each year for the program. To date, \$1.2 million in state funds have been used to finance various projects. The program has also received additional implementation grants from the Environmental Protection Agency in the amount of \$1.7 million. The average cost of a vegetative shoreline erosion control project ranges between \$30 and \$60 per linear foot of shoreline. Once contacted by an interested property owner, the program staff perform a site inspection and advise the owner regarding site suitability and his eligibility for financial and technical assistance. Assuming the site is suitable, the owner then selects a contractor to plan and design the project. Upon completion of this planning stage, the owner, with the assistance of his contractor, applies for the requisite permits (i.e. state wetlands license, U.S. Army Corps of Engineers permit, and local erosion and sediment control plan approval permit). Once the permits are received, the Department of Natural Resources approves funding. The property owner then submits an appropriate design plan and the project begins. The state reimburses the owner for one-half of his cost incurred in developing the design plan.

#### D. Formulating an Erosion Control Policy

##### 1. Understanding and documenting the natural processes

As part of its effort to formulate an erosion control policy, the subcommittee sought testimony from scientists familiar with Virginia's coastal processes. In its discussions with the subcommittee, staff of the Center for Estuarine Resource Management and Policy (VIMS) emphasized that the goal of such a policy should not be the control of the natural process but the mitigation of some of the effects. There is no universal strategy for mitigation or control of shoreline erosion; rather, a number of different strategies should be designed, each recognizing the structural and functional differences which exist along Virginia estuarine (bay) shorelines, ocean coasts, and barrier islands.

All shorelines can be developed into zones or reaches within which the processes of accretion, sediment transport and erosion interact to form discrete, if not isolated, geologic units. These types of interactions will dictate the types of coastline and their response to a particular mitigation measure. The bay shorelines which are activated for short periods of time are not in equilibrium. These areas are characterized by a diversity of shore types, including marshes (wetlands), and eroding fastland banks. Once the agricultural or forestal land erodes there is no natural process of replenishment. A variety of techniques are available for successful stabilization of these low energy shorelines, but the appropriate technique can only be determined by analysis of the dominate process at the site or in the reach area.

In contrast, open coast shorelines are in greater equilibrium due to the continual offshore transport and exchange of sand. Before developing an engineering strategy for controlling erosion there has to be an understanding of the exchange process. Hardening of the shoreline, according to expert testimony, is rarely a satisfactory long term solution to erosion in open coasts (ocean) in the face of a continually rising sea level. To be successful in such settings, structures must be both massive and extend for long distances along the shoreline, making such protection very expensive. It is rarely possible to maintain the beach in front of such structures without the periodic replenishment of sand.

The Virginia barrier islands are characterized by low elevation, and interrupted narrow strips of islands each with its own sand exchange process. The health of these islands, which protect the mainland, depends on the ability of each island to roll over and gradually migrate landward through a process of washover. The placement of control structures or significant development on these islands will inhibit washover and result in the narrowing and eventual disappearance of the island strip.

An erosion control policy should reflect an understanding of the complex natural processes which dominate the exchange of sand in Virginia's shoreline areas. Because specific shoreline stabilization measures can produce undesirable effects elsewhere within a reach, management efforts are most effective when implemented on the same scale at which local geologic processes occur. Currently, Virginia is limited in its ability to develop effective management strategies and a comprehensive management program because of a lack of data detailing each reach of the Virginia shoreline, its physical and geologic characteristics, present and potential land uses, and present and potential management efforts.



## 2. Ownership Along Virginia's Shoreline

The subcommittee was cautioned that before modifying the Commonwealth's shoreline erosion policies the legal questions surrounding ownership of Virginia's shoreline and the attendant rights and responsibilities should be resolved. Mr. Bart Theberge of VIMS' Department of Ocean and Coastal Law explained that as shoreline areas have changed hands questions of ownership have arisen. During the past fifteen years VIMS has been requested to conduct several studies of the public/private ownership of coastal beaches, bottomlands and marshes. These studies have suggested: (i) coastal lands subject to public use and state claims of ownership do exist; (ii) private claims have been and are being made on such lands; (iii) such lands are largely unidentified and unknown to the state; and (iv) the state is failing a management and public trust obligation with regard to such lands.

A case in point according to Mr. Theberge is Cedar Island, located on Virginia's Eastern Shore. Research conducted in 1978 indicated that the first grant of land on Cedar Island was made to private individuals in 1861. The island was subdivided subsequently and at some point passed back into the hands of the Commonwealth. In 1876, the Commonwealth again granted the island to a private individual after the enactment of several statutes preserving the shores of the sea as the property of the Commonwealth and protecting lands that had been used as a commons. The data gathered by the researchers indicates state ownership of the ocean shore along Cedar Island. In addition, Mr. Theberge suggested that despite a recent Virginia Supreme Court decision limiting the definition of the shores of the sea to the intertidal zone, there is evidence that this definition may be too restrictive; that the shores of the sea may reflect a broader concept.

The subcommittee is concerned with implications of the public trust obligations raised by questions of private versus public ownership. Currently, despite state ownership, no state agency has been specifically designated as steward of these lands and no inventory of these lands exists. The state's assumption of its public trust responsibilities represents a significant tool in the management of Virginia's coastal resources. Without the identification of these lands and a comprehensive review of the legal history, the state's authority to regulate activities along its shorelines will continue to be problematic.

## 3. Conflicting statutory definitions and implications for shoreline management.

Noting that scientific understanding is not easily reduced to language that will retain its original intent in the face of political considerations, technical experts expressed concern with certain statutory definitions which have been so modified as to "confound implementation efforts." For instance, a "reach" in scientific terms is considered to be a shoreline unit within which geologic and oceanographic processes are working in similar fashion. It includes no regulatory or jurisdictional

considerations. The current statutory definition which appears in the Coastal Primary Sand Dune Protection Act was modified during the legislative process to effectively limit application of the concept to the Chesapeake Bay shoreline. Since "reaches" exist along all shorelines it would be technically accurate to extend the definition to include the open coast shoreline (Atlantic Coast) as well. If this were done "washover" areas characteristic of barrier islands and spits would then clearly fall under the provisions of the Act. A second suggested change is to restore previously proposed language which establishes the "normal hardwood vegetation line or man-made impermeable structures, roads or bulkheads..." as the landward limit of a reach. This change would enable those charged with the responsibility for administering the Act to make jurisdictional determinations based on observable conditions without the ambiguity which exists currently in determining what constitutes a "contemplated" structure.

VIMS staff also expressed reservation with regards to the current statutory definition of primary sand dune. They note that the 10% slope standard raises questions as to the scale involved. Does the 10% gradation apply over a short distance or perhaps as far as 500 yards? There appears to be no standard unit used to define the slope break. Additionally, they point out that a nonvegetated dune is not covered by this definition. Other states as well as the federal government recognize the geologic fact that a beach usually lies between a dune and the high water line and that dunes are mobile features that may or may not have vegetative cover.

#### 4. Proposal for shoreline management

Under the current regulatory program questions of jurisdiction consume a significant portion of the administrative effort. Accordingly to VIMS staff this is due in part from what they describe as "difficulties inherent in the interpretation of the legislation" and to a greater extent "from the need to make a determination on a case-by-case basis as permits are requested." Rather than advising property owners about control strategies which will ensure that development of the shoreline results in minimal adverse impact, much of the expertise is expended in determining the limits of jurisdiction based on various statutory definitions.

They propose an approach to shoreline management which removes the jurisdictional question from the permit review process. It is suggested that this can be accomplished by making the determination of jurisdictional limits a separate activity. Based on a series of sound technical assessments which consider flooding, inundation, overwash, storm surge, and the historical rates of erosion, a control line would be established. The area in front (seaward) of this line would be designated

as an environmentally sensitive management zone. Development behind the line would be subject to local zoning ordinances. Proposed development seaward of the line would be subject to VMRC and local wetlands boards permit requirements. An applicant who proposes to build in the zone would be required to show that the structure will cause no environmental damage.

A second feature of the new management policy would be the periodic review and revision of the control line which delineates the management zone. Such a review recognizes the dynamic nature of Virginia's shoreline and seeks "to ensure that the management effort is always appropriate to the setting." Those offering the proposal recommend that this management approach be implemented for the areas currently under the jurisdiction of Coastal Primary Sand Dune Protection Act. They suggest that this approach would eliminate problems associated with landward and lateral jurisdiction determination and restore the focus of management to the mitigation of the impacts of development.

### III. Recommendations

1. That the work of the joint subcommittee be continued. (See Appendix A for continuing resolution.)
2. That the Commonwealth develop a comprehensive coastal inventory. Such an inventory should identify environmentally sensitive zones for future management considerations and document the status of state-owned beaches, marshes and other coastal lands. Without a comprehensive, coordinated and common-format inventory it will be difficult to effectively address coastal zone issues. (See Appendix B for the proposal made to the House Committee on Appropriations.)
3. To avoid statutory conflicts in the use of the "reach" concept and to provide more consistency in the application of regulatory authority legislation should be introduced to amend the Coastal Primary Sand Dune Protection Act by striking the definition of reach and substituting the following definition:

"Beach" means (i) the shoreline zone comprised of unconsolidated sandy material upon which there is a mutual interaction of the forces of erosion, sediment transport and deposition that extends from the low water line landward to where there is a marked change in either material composition or physiographic form such as a dune, bluff or marsh, or (ii) where no such change can be identified, to the line of woody vegetation (usually the effective line of stormwaves), or to the nearest impermeable man-made structure, such as a bulkhead, revetment or paved road. Wherever coastal primary sand dunes are referred to in this chapter such references shall also include beaches. (See Appendix C for legislation.)

Respectfully submitted,

V. Thomas Forehand, Jr., Chairman  
Clive L. DuVal, 2d  
Joseph V. Gartlan, Jr.  
J. Samuel Glasscock  
Clarence A. Holland  
W. Tayloe Murphy  
Harry R. Purkey

1988 SESSION

LD4067460

HOUSE JOINT RESOLUTION NO. 109

Offered January 26, 1988

Continuing the joint subcommittee studying tidal shoreline erosion.

Patrons--Forehand, Glasscock, Purkey and Murphy; Senators: DuVal, Holland, C. A. and Gartlan

Referred to the Committee on Rules

WHEREAS, House Joint Resolution No. 226, passed during the 1987 Session of the General Assembly, continued the joint subcommittee in order to (i) study the feasibility of instituting a comprehensive shoreline erosion policy, (ii) determine the Commonwealth's responsibility to protect private shoreline property, and (iii) develop funding initiatives; and

WHEREAS, the joint subcommittee received testimony on these issues from a wide range of experts; and

WHEREAS, the development of management and financing policies must include such complex issues as (i) the need to develop different erosion control policies in ocean coast and bay areas; (ii) the need to develop a data base on the characteristics of the shoreline of Virginia; (iii) the financing alternatives that the Commonwealth should undertake to mitigate the effects of shoreline erosion; and (iv) resolution of questions of ownership of Virginia shorelines; and

WHEREAS, the joint subcommittee has not completed its analyses of these issues; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the joint subcommittee studying shoreline erosion is continued. The current membership of the joint subcommittee shall continue to serve.

The joint subcommittee shall report its findings and recommendations to the 1989 General Assembly.

The indirect costs of this study are estimated to be \$16,050; the direct costs of the study shall not exceed \$7,560.

Official Use By Clerks

Agreed to By The House of Delegates without amendment [ ] with amendment [ ] substitute [ ] substitute w/amdt [ ]

Agreed to By The Senate without amendment [ ] with amendment [ ] substitute [ ] substitute w/amdt [ ]

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Clerk of the House of Delegates

Clerk of the Senate

## 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:

	<u>Year 1</u>	<u>Year 2</u>
Personnel Services	\$92,100	\$99,500
Nonpersonnel costs	<u>29,200</u>	<u>29,200</u>
Total costs	\$121,300	\$128,700
<b>TOTAL FOR BIENNIUM</b>	<b>\$250,000</b>	

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 compatibility and thus enhance the opportunities for productive use of the information once it is generated.

LD1241460

## HOUSE BILL NO. 692

Offered January 26, 1988

A BILL to amend and reenact §§ 62.1-13.21, 62.1-13.22 and 62.1-13.25 of the Code of Virginia, relating to the definition of "beach".

Patron—Forehand

Referred to the Committee on Conservation and Natural Resources

Be it enacted by the General Assembly of Virginia:

1. That §§ 62.1-13.21, 62.1-13.22 and 62.1-13.25 of the Code of Virginia are amended and reenacted as follows:

§ 62.1-13.21. Legislative declaration; public policy.—The Commonwealth of Virginia hereby recognizes the importance of coastal primary sand dunes with their unique physiographic features which, in their natural state, serve as protective barriers from the effects of flooding and erosion caused by coastal storms, thereby protecting life and property; that such dunes provide an essential source of natural sand replenishment for beaches and an important natural habitat for coastal fauna; and are important to the overall scenic and recreational attractiveness of Virginia's coastal area.

Inappropriate development on coastal primary sand dunes and ~~reaches beaches~~ can destroy vegetation which stabilizes such features, alter the natural contour of these sand dunes and ~~reaches beaches~~, impede their natural formation and migration and interrupt wind and water currents which replenish the sand supply of beaches. Such alterations to coastal primary sand dunes and ~~reaches beaches~~ may lead to increased shoreline erosion, coastal flooding, damage to fixed structures near the shore, loss of public and private open space, loss of wildlife habitat and increased expenditure of public funds.

Therefore, in order to reasonably protect the public interest, promote public health, safety, the general welfare of the Commonwealth, protect private and public property from erosion and flooding and protect wildlife and the natural environment, it is declared to be the public policy of the Commonwealth whenever reasonably necessary to preserve and protect coastal primary sand dunes and ~~reaches beaches~~ and to prevent their despoliation and destruction and whenever practical to accommodate necessary economic development in a manner consistent with the protection of such features.

§ 62.1-13.22. Definitions.—For the purposes of this chapter, the following words shall have the meanings respectively ascribed to them:

"Beach" means (i) the shoreline zone comprised of unconsolidated sandy material upon which there is a mutual interaction of the forces of erosion, sediment transport and deposition that extends from the low water line landward to where there is a marked change in either material composition or physiographic form such as a dune, bluff or marsh, or (ii) where no such change can be identified, to the line of woody vegetation (usually the effective limit of stormwaves), or the nearest impermeable man-made structure, such as a bulkhead, revetment or paved road. Whenever coastal primary sand dunes are referred to in this chapter such references shall also include beaches.

A. "Commission" means the Virginia Marine Resources Commission.

B. "Commissioner" means the Commissioner of the Virginia Marine Resources Commission.

C. "County or city" means the governing body of such county or city.

D. "Coastal primary sand dune" means a mound of unconsolidated sandy soil which is contiguous to mean high water, whose landward and lateral limits are marked by a change in grade from ten percent or greater to less than ten percent, and upon any part of which is growing as of July 1, 1980, or grows thereon subsequent thereto, any one or more of the following: American beach grass (*Ammophilla breviligulata*); beach heather (*Hudsonia tometosa*); dune bean (*Strophostylis umbellata* var. *paludigena*); dusty miller (*Artemisia stelleriana*); saltmeadow hay (*Spartina patens*); seabeach sandwort (*Arenaria peploides*); sea

1 oats (*Uniola paniculata*); sea rocket (*Cakile edentula*); seaside goldenrod (*Solidago*  
2 *sempervirens*); and short dune grass (*Panicum ararum*). For purposes of this chapter,  
3 "coastal primary sand dune" shall not include any mound of sand, sandy soil or dredge soil  
4 which has been deposited by man for the purpose of the temporary storage of such  
5 material for later use.

6 E. "Coastal primary sand dune zoning ordinance" means that ordinance set forth in §  
7 62.1-13.25.

8 F. "Governmental activity" means any or all of the services provided by the  
9 Commonwealth or a county or city to its citizens for the purpose of maintaining public  
10 facilities and shall include but not be limited to such services as constructing, repairing and  
11 maintaining roads, sewage facilities, supplying and treating water, street lights and  
12 constructing public buildings.

13 G. "Reach" means a coastal segment of sandy beach fronting on the Chesapeake Bay  
14 (i) upon which there is mutual interaction of the forces of erosion, sediment transport and  
15 accretion, (ii) whose landward limit, where no coastal primary sand dune can be identified,  
16 is defined by the nearest man-made impermeable structure or structures similarly located  
17 where a proposed structure is contemplated, or roads or bulkheads and (iii) lies within a  
18 county, city or town which is receiving or has received funds under the provisions of  
19 Chapter 21 (§ 10-215 et seq.) of Title 10. Whenever coastal primary sand dunes are  
20 referred to in this chapter such reference shall also include reaches.

21 § 62.1-13.25. Certain counties and cities authorized to adopt coastal primary sand dune  
22 ordinance.—Any of the following counties or cities which adopt a wetlands ordinance  
23 pursuant to § 62.1-13.5 may adopt the ordinance contained herein: the Counties of  
24 Accomack, Lancaster, Mathews, Northampton and Northumberland and the Cities of  
25 Hampton, Norfolk, and Virginia Beach. In the event that a locality has not adopted a  
26 wetlands ordinance pursuant to Chapter 2.1 (§ 62.1-13.1 et seq.) of Title 62.1, such locality  
27 may adopt the ordinance contained herein; however, such locality shall appoint a wetlands  
28 board following the procedure specified in § 62.1-13.6. *Any county or city which has*  
29 *adopted the Coastal Primary Sand Dune Zoning Ordinance prior to July 1, 1988, shall*  
30 *amend such ordinance to conform it to the ordinance contained herein by December 1,*  
31 *1988. Until such county or city has made such amendment, the ordinance shall be read as*  
32 *if it conformed with the ordinance contained herein.*

33 Coastal Primary Sand Dune Zoning Ordinance

34 § 1. The governing body of ....., acting pursuant to Chapter 2.2 (§ 62.1-13.21  
35 et seq.) of Title 62.1 of the Code of Virginia, for the purposes of fulfilling the policy and  
36 standards set forth in such chapter, adopts this ordinance regulating the use and  
37 development of coastal primary sand dunes.

38 § 2. Definitions. For the purpose of this ordinance:

39 "Beach" means (i) the shoreline zone comprised of unconsolidated sandy material upon  
40 which there is a mutual interaction of the forces of erosion, sediment transport and  
41 deposition that extends from the low water line landward to where there is a marked  
42 change in either material composition or physiographic form such as a dune, bluff or  
43 marsh, or (ii) where no such change can be identified, to the line of woody vegetation  
44 (usually the effective limit of stormwaves), or the nearest impermeable man-made  
45 structure, such as a bulkhead, revetment or paved road. Whenever coastal primary sand  
46 dunes are referred to in this ordinance, such references shall also include beaches.

47 A. "Commission" shall mean the Virginia Marine Resources Commission.

48 B. "Commissioner" shall mean the Commissioner of the Virginia Marine Resources  
49 Commission.

50 C. "County or city" shall mean the governing body of such county or city.

51 D. "Coastal primary sand dune" hereinafter referred to as "dune," shall mean a mound  
52 of unconsolidated sandy soil which is contiguous to mean high water, whose landward and  
53 lateral limits are marked by a change in grade from ten percent or greater to less than  
54 ten percent, and upon any part of which is growing on July 1, 1980, or grows thereon

1 subsequent thereto, any one or more of the following: American beach grass (*Ammophilla*  
2 *breviligulata*); beach heather (*Hudsonia tometosa*); dune bean (*Strophostylis umbellata* var,  
3 *paludigena*); dusty miller (*Artemisia stelleriana*); saltmeadow hay (*Spartina patens*);  
4 seabeach sandwort (*Arenaria peploides*); sea oats (*Uniola paniculata*); sea rocket (*Cakile*  
5 *edentula*); seaside goldenrod (*Solidago sempervirens*); and short dune grass (*Panicum*  
6 *ararum*). For purposes of this ordinance, "coastal primary sand dune" shall not include any  
7 mound of sand, sandy soil or dredge soil which has been deposited by man for the purpose  
8 of the temporary storage of such material for later use.

9 E. "Governmental activity" shall mean any or all of the services provided by the  
10 Commonwealth or a county or city to its citizens for the purpose of maintaining public  
11 facilities and shall include but not be limited to such services as constructing, repairing and  
12 maintaining roads, sewage facilities, supplying and treating water, street lights and  
13 constructing public buildings.

14 E1. "Reach" means a coastal segment of sandy beach fronting on the Chesapeake Bay  
15 (i) upon which there is mutual interaction of the forces of erosion, sediment transport and  
16 accretion, (ii) whose landward limit, where no coastal primary sand dune can be identified,  
17 is defined by the nearest man-made impermeable structure or structures similarly located  
18 where a proposed structure is contemplated, or roads or bulkheads and (iii) lies within a  
19 county, city or town which is receiving or has received funds under the provisions of  
20 Chapter 21 (§ 10-215 et seq.) of Title 10 of the Code. Whenever coastal primary sand dunes  
21 are referred to in this ordinance such reference shall also include reaches.

22 F. "Wetlands board" or "board" means the board created as provided for in § 62.1-13.6  
23 of the Code of Virginia.

24 § 3. The following uses of and activities on dunes are permitted if otherwise permitted  
25 by law:

26 A. The construction and maintenance of noncommercial walkways which do not alter  
27 the contour of the coastal primary sand dune;

28 B. The construction and maintenance of observation platforms which are not an integral  
29 part of any dwelling and which do not alter the contour of the coastal primary sand dune;

30 C. The planting of beach grasses or other vegetation for the purpose of stabilizing  
31 coastal primary sand dunes;

32 D. The placement of sand fences or other material on or adjacent to coastal primary  
33 sand dunes for the purpose of stabilizing such features, except that this provision shall not  
34 be interpreted to authorize the placement of any material which presents a public health  
35 or safety hazard;

36 E. Sand replenishment activities of any private or public concern provided no sand  
37 shall be removed from any coastal primary sand dune unless authorized by lawful permit;

38 F. The normal maintenance of any groin, jetty, riprap, bulkhead or other structure  
39 designed to control beach erosion which may abut a coastal primary sand dune;

40 G. The normal maintenance or repair of presently existing roads, highways, railroad  
41 beds and facilities of the United States, this Commonwealth, or any of its counties or cities,  
42 or those of any person, firm, corporation, or utility, provided no coastal primary sand  
43 dunes are altered;

44 H. Outdoor recreational activities, provided that such activities do not alter the natural  
45 contour of the coastal primary sand dune or destroy its vegetation;

46 I. The conservation and research activities of the Virginia Marine Resources  
47 Commission, Virginia Institute of Marine Science, Department of Game and Inland Fisheries  
48 and other related conservation agencies;

49 J. The construction and maintenance of aids to navigation which are authorized by  
50 governmental authority;

51 K. Activities pursuant to any emergency declaration by the governing body of any local  
52 government or the Governor of the Commonwealth or any public health officer for the  
53 purposes of protecting the public health or safety; and

54 L. Governmental activity on coastal primary sand dunes owned or leased by the

1 Commonwealth of Virginia or a political subdivision thereof.

2 § 4. Any person who desires to use or alter any coastal primary sand dune within this .  
3 . . . . . (county or city), other than for those activities specified in §  
4 3 herein, shall first file an application with the wetlands board in accordance with § 4 of §  
5 62.1-13.5 of the Code of Virginia. The wetlands board may establish a processing fee in  
6 accordance with § 4 of § 62.1-13.5 of the Code of Virginia. No person shall be required to  
7 file two separate applications for permits if the project to be undertaken would require  
8 that a permit be filed in accordance with § 62.1-13.5 as well as this ordinance. Under such  
9 circumstances the fee accompanying the application required by § 62.1-13.5 shall also be  
10 the fee for the purpose of this ordinance.

11 § 5. All applications and maps and documents relating thereto shall be open for public  
12 inspection at the office of the recording officer of this . . . . .  
13 (county or city).

14 § 6. Not later than sixty days after receipt of such application, the wetlands board shall  
15 hold a public hearing on such application. The applicant, the local governing body, the  
16 Commissioner, the owner of record of any land adjacent to the coastal primary sand dunes  
17 in question, known claimants of water rights in or adjacent to the coastal primary sand  
18 dunes in question, the Virginia Institute of Marine Science, the Department of Game and  
19 Inland Fisheries, the Water Control Board, the Department of Transportation and  
20 governmental agencies expressing an interest therein shall be notified by the board of the  
21 hearing by mail not less than twenty days prior to the date set for the hearing. The  
22 wetlands board shall also cause notice of such hearing to be published at least once a  
23 week for two weeks prior to such hearing in the newspaper having a general circulation in  
24 this . . . . . (county or city). The costs of such publication shall  
25 be paid by the applicant.

26 § 7. In acting on any application for a permit, the board shall grant the application  
27 upon the concurring vote of three members of a five-member board or four members of a  
28 seven-member board. The chairman of the board, or in his absence the acting chairman,  
29 may administer oaths and compel the attendance of witnesses. Any person may appear and  
30 be heard at the public hearing. Each witness at the hearing may submit a concise written  
31 statement of his testimony. The board shall make a record of the proceeding, which shall  
32 include the application, any written statements of witnesses, a summary of statements of all  
33 witnesses, the findings and decision of the board, and the rationale for the decision. The  
34 board shall make its determination within thirty days from the hearing. If the board fails  
35 to act within such time, the application shall be deemed approved. Within forty-eight hours  
36 of its determination, the board shall notify the applicant and the Commissioner of such  
37 determination and if the board has not made a determination, it shall notify the applicant  
38 and the Commission that thirty days has passed and that the application is deemed  
39 approved.

40 The board shall transmit a copy of the permit to the Commissioner. If the application is  
41 reviewed or appealed, then the board shall transmit the record of its hearing to the  
42 Commissioner. Upon a final determination by the Commission, the record shall be returned  
43 to the board. The record shall be open for public inspection at the office of the recording  
44 officer of this . . . . . (county or city).

45 § 8. The board may require a reasonable bond or letter of credit in an amount and  
46 with surety and conditions satisfactory to it securing to the Commonwealth compliance with  
47 the conditions and limitations set forth in the permit. The board may, after hearing as  
48 provided herein, suspend or revoke a permit if the board finds that the applicant has  
49 failed to comply with any of the conditions or limitations set forth in the permit or has  
50 exceeded the scope of the work as set forth in the application. The board after hearing  
51 may suspend a permit if the applicant fails to comply with the terms and conditions set  
52 forth in the application.

53 § 9. A. In making its decision whether to grant, to grant in modified form, or to deny  
54 an application for a permit, the board shall base its decision on the following factors:

1 1. Such matters raised through the testimony of any person in support of or in rebuttal  
2 to the permit application.

3 2. Impact of the development on the public health and welfare as expressed by the  
4 policy and standards of Chapter 2.2 (§ 62.1-13.21 et seq.) of Title 62.1 of the Code of  
5 Virginia and any guidelines which may have been promulgated thereunder by the  
6 Commission.

7 B. If the board, in applying the standards above, finds that the anticipated public and  
8 private benefit of the proposed activity exceeds the anticipated public and private  
9 detriment and that the proposed activity would not violate the purposes and intent of  
10 Chapter 2.2 of Title 62.1 of the Code of Virginia and of this ordinance, the board shall  
11 grant the permit, subject to any reasonable condition or modification designed to minimize  
12 the impact of the activity on the ability of this . . . . .  
13 (county or city), to provide governmental services and on the rights of any other person  
14 and to carry out the public policy set forth in Chapter 2.2 of Title 62.1 of the Code of  
15 Virginia and in this ordinance. Nothing in this section shall be construed as affecting the  
16 right of any person to seek compensation for any injury in fact incurred by him because  
17 of the proposed activity. If the board finds that the anticipated public and private benefit  
18 from the proposed activity is exceeded by the anticipated public and private detriment or  
19 that the proposed activity would violate the purposes and intent of Chapter 2.2 of Title 62.1  
20 of the Code of Virginia and of this ordinance, the board shall deny the permit application  
21 with leave to the applicant to resubmit the application in modified form.

22 § 10. The permit shall be in writing, signed by the chairman of the board and  
23 notarized.

24 § 11. No permit shall be granted without an expiration date, and the board, in the  
25 exercise of its discretion, shall designate an expiration date for completion of such work  
26 specified in the permit from the date the board granted such permit. The board, however,  
27 may, upon proper application therefor, grant extensions.

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<b>Official Use By Clerks</b>	
<b>Passed By</b>	<b>Passed By The Senate</b>
The House of Delegates	without amendment <input type="checkbox"/>
without amendment <input type="checkbox"/>	with amendment <input type="checkbox"/>
with amendment <input type="checkbox"/>	substitute <input type="checkbox"/>
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substitute w/amdt <input type="checkbox"/>	
Date: _____	Date: _____
Clerk of the House of Delegates	Clerk of the Senate

