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Jurisdictional environmental coordination, Gloucester County, Virginia

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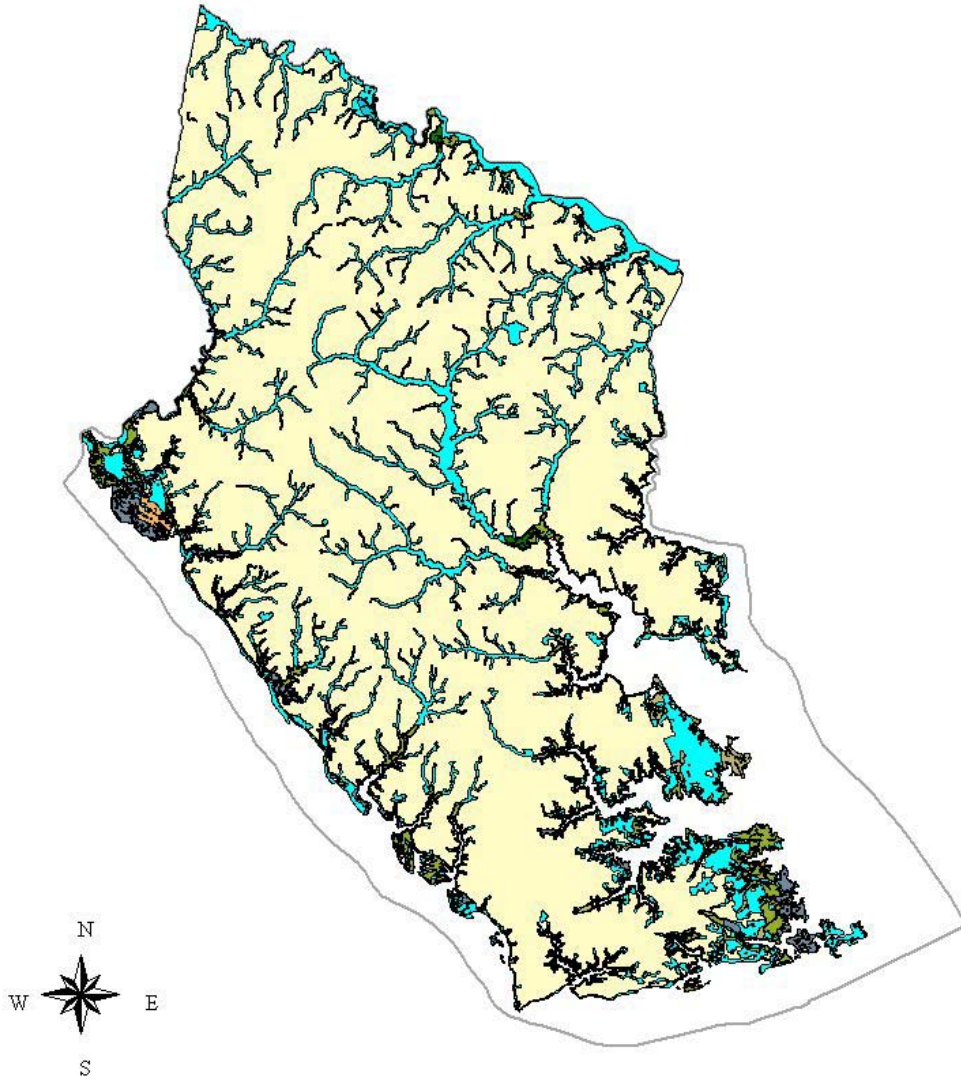
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Jurisdictional Environmental Coordination: Gloucester County, Virginia



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Center for
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VIRGINIA INSTITUTE OF MARINE SCIENCE
SCHOOL OF MARINE SCIENCE

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Submitted by
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(Authors Note: This report was prepared in conjunction with a GIS project in ArcView. Copies of the project on CD may be obtained by contacting the first author. See the staff listings for contact information)

Introduction

The ability to coordinate the management of human activities in the landscape from an environmental perspective has been a desired, yet elusive, interest. The ability to accurately value environmental functions economically has confounded this process; but conflicts are not confined to the obvious ones between economics and the environment. Even those activities within the field of environmental management are not always harmonious. A myriad of management activities administered at various levels of government results in a web of responsibilities lacking in any central coordination. Varied local, state, and federal programs administered by different agencies have missions that put them in conflict with other agencies and programs.

The greatest challenge in the process of integrating management of environmental programs in Virginia is not unique to Virginia. The challenge is that the primary responsibility for management of the commonly held resources, common-pool resources (CPR), falls to the state, while the privately held resources are managed by local governments tenuously balanced on personal property rights. From an ecosystem perspective the ramifications of private lands management processes on public resources can not be ignored. Non-point pollution is the perfect example of this problem wherein decisions and actions on the land impact the commonly owned waters. However, the disjunct in environmental management is not limited to gaps between local resources and public interests, but among public interests as well. Again, non-point pollution provides a good example. The lead agency for the management of nonpoint pollution is DCR (Department of Conservation and Recreation), yet programs under the purview of CBLAD (Chesapeake Bay Local Assistance Department) are also aimed at the reduction of non-point pollution, as are activities of the Department of Forestry (DOF) and the Department of Agriculture and Consumer Services (DACCS). However, water quality monitoring is the responsibility of Department of Environmental Quality (DEQ) and the denizens of the waterways impacted by the non point pollution are the responsibility of DGIF (Department of Game and Inland Fisheries) and Virginia Marine Resources Commission (VMRC) and others.

Driven by historical and current public interest in the Commonwealths' water resources, the primary mission of the majority of Virginia's environmental management programs is the protection of water quality. There is a notable conflict between the environmental interests in managing for water quality protection and improvement, and the economic interests in development. From an aquatic ecological perspective, those lands with the greatest "cache" in terms of ecological function and associated societal value, are precisely the same lands which are valued for commercial and residential development; waterfront property. Residential and commercial waterfront property owners, and the local tax assessors, support the notion of shoreline modification for the purposes of erosion

control, while water quality interests support the maintenance of a more “natural” condition. On the same note, waterfront property is highly valuable, and it’s development brings economic resources to local governments.

The ability to assess the risks of one decision-making authority on resources outside the purview of that authority is the challenge. One tool available to assist in the challenge is Geographic Information Systems (GIS). GIS allows for the graphic display (mapping) as well as the analytical modeling of the various spatial data. For our purposes, the relevant data are those existing environmental resource (and management jurisdictions) datasets of Gloucester County, Virginia. As a complement to the GIS, a regulatory review and generation of matrices will aid in the demonstration of need, and identification of opportunity for regulatory integration.

Methods

The project had three parts;

- 1: the development of a GIS project
- 2: an analysis of the regulatory framework in Gloucester County, Virginia, and
- 3: Evaluation of the need and potential for integrated environmental management.

The GIS project was created in ArcView by the staff of the Comprehensive Coastal Inventory (CCI), Center for Coastal Resources Management, Virginia Institute of Marine Science. Much of the relevant data was previously created by, and resided with, the CCI. The relevant, available data were clipped for Gloucester County.

The regulatory analysis was performed by reviewing and compiling the relevant environmental legislation, and by creating two matrices to aid in the assessment of the regulatory structure.

The evaluation of the need and opportunity for integrated management relies on the use of the GIS project and the regulatory assessment. The expectation is that the GIS project and the regulatory matrices will demonstrate the need and identify opportunities for integrated management.

GIS Project

The GIS project includes the following data layers:

- Marina Site Suitability
- Shoreline Risk
- Tidal Marsh Inventory
- National Wetlands Inventory
- Forest Buffers
- Chesapeake Bay Preservation Act Area
- Erosion and Sediment Control
- Rare, Threatened and Endangered species Submerged Aquatic Vegetation

Subaqueous Lands
Submerged Aquatic Vegetation
Shellfish Closures
Baylor Grounds
Oyster Reefs
Shoreline Structures
Marinas
Boat ramps
Roads
Water Quality monitoring stations
Shoreline
Hydrography
Watersheds
Landuse/ Landcover
County boundary

A button has been added to the GIS interface, ArcView, to allow the user to view detailed information on the regulatory authority and jurisdiction for each data layer. The button is labeled with a capitol J. (The information may also be viewed under the theme properties for the active theme.) For those data layers which represent managed resources, or jurisdictions, the information button provides the relevant legislative authority from the Virginia Code, the administering agency (ies), and the regulatory scope and jurisdiction in Gloucester. For the remaining data layers information on the data source is included. The users may display different jurisdiction and resource themes to observe the relative position to other themes. Resource overlap and juxtapositions may be investigated. Assessment of potential regulatory conflict may be as simple as observation of immediately adjacent resources managed by different agencies, or one resource (tidal and nontidal wetlands as indicated by the National Wetlands Inventory layer) managed by multiple authorities.

The original intent for the GIS project was to use existing data, only, allowing for the GIS effort to be directed toward data analysis not data creation. However, it became evident that limiting the data to existing datasets would severely limit the applicability of the project for the analysis of cross-jurisdictional environmental issues. One reason was the dearth of geographic data for environmental jurisdictional authorities. To some extent this is the result of the difficulty in graphically depicting jurisdiction. In other instances, previously generated data was no longer available. As a result, several data were generated by the Comprehensive Coastal Inventory, Center for Coastal Resources Management for this project including, but not limited to;

- ▶ Chesapeake Bay Preservation Act Areas,
- ▶ Subaqueous Lands
- ▶ Shoreline Structures
- ▶ Shoreline Risk

The Shoreline Risk layer is an analytical dataset generated to demonstrate the use of the GIS project for cross-jurisdictional assessment. The data was generated by modeling those portions of the shoreline currently lacking shoreline protection structures,

which also have greater than 60% forested riparian cover. This analysis is based on the practice of removing forested cover while emplacing shoreline protection structures; as such all currently unprotected forested shoreline is at risk for modification. The placement of the structure usually results in tidal wetland impacts and is thereby managed by the local government under the Tidal Wetlands Act with oversight by the VMRC. The modification of shoreline buffer vegetation is also managed by the local government, but under the Chesapeake Bay Preservation Act with oversight by the CBLAD. The logistics of managing the two programs at the local level often result in the responsibility falling to two different individuals, and maybe even two different departments. This management structure creates the likelihood that activities managed under one program have the potential for un-assessed impacts to the resources managed by the other program. And, as the forested buffers provide water quality benefits, loss of buffer area will have incremental adverse effects on the water quality of the adjacent waterway. The potential for adverse effects of incremental water quality degradation on adjacent aquatic resources may be noted by comparing the shoreline risk areas to other mapped resources. Additional analyses of this sort may be performed with the data.

There are limitations on the use of the GIS project for analysis of inter-jurisdictional environmental coordination in Gloucester. The limitations stem from the timeliness and scale of the data. The data was initially limited to extant datasets at the start of the project and some data is more current than others. With regard to the scale limitation, some jurisdictional resources do not lend themselves to spatial display because their distribution is too broad (i.e. marine fisheries), or the managed resources are too site-specific or activity specific to define geographically (i.e individual activities managed under the Erosion and Sediment Control law). Finally, as previously mentioned, few geographic data exist for environment management programs, so the available data for the managed resources is used as a surrogate.

Regulatory Framework Analysis

There are 8 state agencies and the local government managing for environmental resources in Gloucester County. The agencies operate numerous management programs through various departments (See Appendix 1 for a summary of legislative language applicable to environmental resources in Gloucester, Virginia). The number of programs alone, may speak to the likelihood for potential problems in the effective management of Gloucester's environmental resources. The existing management structure is an out-growth of the traditional, historical management of the commons and related activities, i.e. marine resources and commercial fishing, separated from privately owned terrestrial and aquatic resources, i.e. game and fishing and hunting, and the notion of regulatory programs (circa 1970's command and control legislation requiring permits) separated from non-regulatory volunteer and incentives programs. Thus we have the "regulatory" agency, Department of Environmental Quality (DEQ), the non-regulatory agency, Department of Conservation and Recreation (DCR), the marine agency, VMRC (Virginia Marine Resources Commission), the freshwater agency, DGIF (Department of Game and Inland Fisheries) and the Chesapeake Bay Local Assistance Department, the shoreland agency.

A matrix of management agencies grouped by resource area is shown in Table 1. The resource area headings are purposefully somewhat broad to demonstrate regulatory overlap with the possibility of redundancy and conflict. Reading down the columns identifies regulatory authorities that may have redundancy. The table demonstrates the issue of state management of public resources, with local management of private resources. Water quality is managed by the state, but moving to the habitat and species resources, the management becomes more complex with multiple authorities.

	Water Quality		Habitat			Species		
	Point Source, Standards, Monitoring	Non-Point Source / Storm-water	Terrestrial	Waterways	Wetlands	Terrestrial/ Endangered	Marine/ Tidal	Non-tidal
Primary Management Responsibility	State	State Local Gov	Local Gov /Private owners	State	Nontidal: State Tidal: Local Gov	Private	State	State
State/Local Program (s)	No	Yes	No	No	Tidal: Yes Nontidal: No		No	No
Lead Agency (Administers Management Programs)	DEQ	DCR	DGIF, DOF	VMRC	Tidal: Local Gov/VMRC Tidal+ Nontidal: DEQ	DGIF, DACS	VMRC DOH	DGIF
Other Agencies	NGO- Citizens	CBLAD DOF, DACS	DCR-DNH	DCR-DNH	CBLAD	DCR-DNH	DCR-DHN	DCR-DHN

Table 1. Matrix of environmental management programs in Gloucester, Virginia

DEQ: Department of Environmental Quality
DOF: Department of Forestry
DOH: Department of Health
VMRC: Va. Marine Resources Commission

DCR: Department of Conservation and Recreation -DNH: Division of Natural Heritage
CBLAD: Ches. Bay Local Assistance Department
DGIF: Department of Game and Inland Fisheries
DACS: Department of Agriculture and Consumer Services

Resource	Ecosystem	
	Marine	Freshwater
Waters	Primary:DEQ, DCR Other: DACS, DOF, CBLAD	Primary:DEQ, DCR Other: DACS, DOF, CBLAD
Habitat	Aquatic: VMRC, Shoreline: Loc. Gov, CBLAD	Aquatic: VMRC Shoreline: Loc. Gov, CBLAD
Wetlands Habitat	VMRC, DEQ, Loc. Gov.	Non-tidal: DEQ, Tidal freshwater: VMRC, Loc. Gov.
Inhabitants	VMRC, DOH	DGIF, Tidal freshwater: VMRC

Table 2. Matrix of regulatory programs of water resources in Gloucester, Virginia
In Table 2, the regulatory authorities managing water related resources are identified by marine and fresh water.

DEQ: Department of Environmental Quality
DOF: Department of Forestry
DOH: Department of Health
VMRC: Va. Marine Resources Commission

DCR: Department of Conservation and Recreation
CBLAD: Ches. Bay Local Assistance Department
DGIF: Department of Game and Inland Fisheries
DACS: Department of Agriculture and Consumer Services

Evaluation of need and potential for integrated environmental management

Both the GIS project and the regulatory analysis demonstrate the need for improved coordination of the management of Gloucester environmental resources. The GIS project allows the users to visually display the overlap in jurisdictions and/or the managed resources, as well as display the likely potential for decisions made regarding one resource effecting immediately adjacent resources managed by different decision-makers.

The regulatory matrices best demonstrate the most likely opportunities for coordination. In Table 1, possibilities for integration may be found by either reading down the columns or looking across rows within the major headings, water quality, habitat and species. These two approaches address integration at different scales. Reading down the columns regulatory redundancy within a specific resource area becomes evident. Integration of activities within columns provides a more unified approach from the regulatory perspective. Integration opportunities within heading start to get to the interest in a more comprehensive treatment of environmental resources. These include the consideration of incorporating all water quality programs into one entity, or integrating the responsibility for all wetland resources. It would seem to hold true that providing a simpler regulatory framework increases the likelihood of

comprehensive environmental management by providing for improved decision-making, and opportunities to do so are demonstrated in table one.

However, the greater interest from an environmental perspective would be in the most comprehensive approach that would result from cross-cutting integration. In Table 2, the agencies and resources are re-oriented to indicate opportunities for horizontal, cross-cutting integration. Reading down the columns demonstrates the disconnect between decision-making responsibility regarding the media (water) and/or habitat, and the living resources which inhabit them.

If the intent of integrating environmental management is to provide for a more effective process from both the environmental and regulatory perspective, than minimizing the regulatory complexity and maximizing the information available for decision-making is the goal. The options to provide better integration of environmental management range from improved communication through education, training, and integrated decision-making processes, to the actual integration of management programs at the state level and between state and local government.

State Level Integration

The relatively complex nature of the environmental regulatory arena in Virginia has not gone unnoticed. In the late 1980's the DEQ was created by integrating 4 agencies: three independent regulatory authorities and one nonregulatory, advisory agency. Legislative reviews and executive task groups continue to assess opportunities to improve the management of Virginia's environmental resources. Several efforts during the 2003 General Assembly were directed at minimizing the complexity of state management efforts with hopes of improving the process and providing more effective management. One proposal integrated the VMRC and the DGIF, while another sought to combine the CBLAD programs into the DCR. Both proposals have some merit as a means of improving environmental coordination. Neither proposal passed.

The consolidation of VMRC and DGIF (combining responsibility across the last row of Table 2) allows for the integrated management of aquatic habitat and inhabitants regardless of tides. VMRC already manages the tidal subaqueous lands and the nontidal river and streams; the coordinated management, particularly of those aquatic species which don't recognize the jurisdictional limits historically defined by the tides, should allow for a more comprehensive approach to decision-making. The option of integrating the two state agencies primarily responsible for species management seems to provide for a more comprehensive approach to the issue. While this option does allow for a three-dimensional view of aquatic resources on the ground - subaqueous lands, and the species living on and above them - it is still limited to on-site, in situ, management. In other words, this option still does not account for the quality of the waters or the sources of risk to water quality which effect the habitat and inhabitants. Additionally, as DGIF is generally the inland, non-coastal agency and VMRC is the tidal, coastal agency, the integration of their responsibilities is not as beneficial to the improved management of resources in a coastal locality, such as Gloucester.

At face value, the proposal to incorporate CBLAD into DCR was intended to coordinate the nonpoint source pollution activities of the two agencies. (This proposal would have integrated programs from the water quality column in Table 1). Both agencies have over-sight authority for local administered programs intended to control nonpoint source pollution, and combining them should promote the review of land disturbing activities from the shoreline inland. This approach would be a step toward cross-cutting integrated decision-making, but still falls short of incorporating the living resources for which the water quality maintenance and improvement is sought.

State-Local Integration

Despite the fact that the enabling legislative language regarding the zoning and comprehensive planning activities of local governments gives broad authority for the consideration of a myriad of environmental and other factors, the reality is that local authority is limited to that given by the state. Local governments may consider a broad breadth of issues in the decision-making process, but they do not have management authority over state held common resources.

§ 15.2-2224 ...In the preparation of a comprehensive plan, the local planning commission shall survey and study such matters as the following:

1. Use of land, preservation of agricultural and forestal land, production of food and fiber, characteristics and conditions of existing development, trends of growth or changes, natural resources, historic areas, ground water, surface water, geologic factors, population factors, employment, environmental and economic factors, existing public facilities, drainage, flood control and flood damage prevention measures, transportation facilities, the need for affordable housing in both the locality and planning district within which it is situated, and any other matters relating to the subject matter and general purposes of the comprehensive plan.

§ 15.2-2283 Purpose of zoning ordinances

.... To these ends, such ordinances shall be designed to give reasonable consideration to each of the following purposes, where applicable: ... (viii) to provide for the preservation of agricultural and forestal lands and other lands of significance for the protection of the natural environment;... Such ordinance may also include reasonable provisions, not inconsistent with applicable state water quality standards, to protect surface water and ground water as defined in § 62.1-255.

While the importance of the opportunity to be inclusive in the consideration of issues in the preparation of a comprehensive plan and zoning decisions should not be underestimated, the possibilities to resolve the apparent disconnect between local decisions effecting common state resources ultimately reside with the state.

One opportunity to improve management coordination between state and local authorities may be found in the management of wetlands. The responsibility for permitting activities in wetlands falls to two different authorities; local governments and the DEQ. The local government process relies on citizen Wetlands Board acting under the authority of the locally adopted model ordinance contained in the Tidal Wetlands Act. Oversight and appeal authority for wetland board decisions falls to the Marine Resources Commission. The DEQ authority is found in the Water Protection Permit. While DEQ

has jurisdiction over all wetlands (tidal, nontidal, isolated), the Wetlands Boards only have authority over tidal wetlands. It should be noted that the perception is that DEQ manages nontidal wetlands, only. This stems from the pragmatic acknowledgment that the tidal wetlands are “taken care of” by the local wetland boards leaving the DEQ (and their regulatory federal partners, the Corps of Engineers) to the task of managing nontidal wetlands. Additionally, state concurrence to the use of expedited nationwide and regional permits by the Corps currently limits those projects, usually effecting tidal resources, which get individual review by the DEQ. Nevertheless, the existing structure creates the chance that the local government and the DEQ would make differing decisions with regard to the same resource. This structure is further complicated at the local government implementation level through the inclusion of tidal and nontidal connected wetlands as resource protection areas under the Chesapeake Bay Preservation Act, thus involving oversight by another state agency. So, again the regulatory overlap in decision-making and the likelihood of different decisions made regarding one resource with potential effect on another (tidal wetlands and non-tidal adjacent wetlands).

With the understanding of the importance of wetlands to water quality and the inclusion of wetlands as waters of the state, the comprehensive authority of the DEQ administering the Virginia Water Protection Permit may provide for better coordinated management for all Virginia’s wetland resources. Integrating the responsibility for wetland management in this manner would remove one level of government and one state agency from the management structure.

Conclusion

The interest in generating build-out scenarios driven by presumptions of impacts according to current zoning was not possible with possible with the available data. The creation of an up-to-date digital zoning coverage for Gloucester is underway. Once the data is available it should be incorporated into the project to allow for additional analysis. Other data to be added in the future might include infrastructure planning, comprehensive planning, recreational uses, and others. These data would allow for additional integrated environmental and economic analyses.

As Gloucester County is a coastal locality where the land and the water meet and their ecologic fates are inseparable, the greatest benefit of environmental coordination from an ecosystem perspective would be achieved through the incorporation of water quality and aquatic living resource management interests in land based decisions. The ability for the state to provide directed, comprehensive and coordinated advice regarding common resources to the local government is hampered by the current regulatory structure. While compete resolution of the issue of private resource decisions effecting common resources is unlikely, there does appear to be potential to improve the coordination of the programs at the state level and between the state agencies and local government. Future efforts should continue to investigate the efficacy of simplifying the state and local environmental regulatory structure.

APPENDIX 1

Summary of Environmental Legislation in Gloucester, Virginia

Water Quality

Standards, Monitoring and Permitting

§ 62.1-44.2 State Water Control Law Short title; purpose

The short title of this chapter is State Water Control Law. It is the policy of the Commonwealth of Virginia and the purpose of this law to: (1) protect existing high quality state waters and restore all other state waters to such condition of quality that any such waters will permit all reasonable public uses and will support the propagation and growth of all aquatic life, including game fish, which might reasonably be expected to inhabit them, (2) safeguard the clean waters of the Commonwealth from pollution, (3) prevent any increase in pollution, (4) reduce existing pollution, and (5) promote water resource conservation, management and distribution, and encourage water consumption reduction in order to provide for the health, safety, and welfare of the present and future citizens of the Commonwealth.

§ 62.1-44.5. Prohibition of waste discharges or other quality alterations of state waters except as authorized by permit; notification required.

§ 62.1-44.15:5 Virginia Water Protection Permit

The Board (State Water Control) must issue a Virginia Water Protection Permit for an activity requiring § 401 certification if it has determined that the proposed activity is consistent with the provisions of the Clean Water Act and will protect instream beneficial uses.

§ 62.1-44.19:5 Water quality monitoring and reporting

A. The Board shall develop the reports required by § 1313(d) (hereafter the "303(d) report") and § 1315(b) (hereafter the "305(b) report") of the Clean Water Act in a manner such that the reports will: (i) provide an accurate and comprehensive assessment of the quality of state surface waters; (ii) identify trends in water quality for specific and easily identifiable geographically defined water segments; (iii) provide a basis for developing initiatives and programs to address current and potential water quality impairment; (iv) be consistent and comparable documents; and (v) contain accurate and comparable data that is representative of the state as a whole.

§ 62.1-44.19:7 Plans to address impaired waters

A. The (SWCB) Board must develop and implement a plan to achieve fully supporting status for impaired waters, except when the impairment is established as naturally occurring. The plan shall include the date of expected achievement of water quality objectives, measurable goals, the corrective actions necessary, and the associated

costs, benefits, and environmental impact of addressing impairment and the expeditious development and implementation of total maximum daily loads when appropriate and as required pursuant to subsection C.

§ 62.1-44.33 Board to make rules and regulations

The State Water Control Board is empowered and directed to adopt and promulgate all necessary rules and regulations for the purpose of controlling the discharge of sewage and other wastes from both documented and undocumented boats and vessels on all navigable and nonnavigable waters within this Commonwealth. In formulating rules and regulations pursuant to this section, the Board is to consult with the State Department of Health, the Department of Game and Inland Fisheries and the Marine Resources Commission for the purpose of coordinating such rules and regulations with the activities of such agencies.

§ 62.1-44.36 Responsibility of State Water Control Board; formulation of policy

Assigns responsibility to the State Water Control Board for planning the development, conservation and utilization of Virginia's water resources.

§ 62.1-44.38 Plans and programs; registration of certain data by water users; advisory committees; committee membership for federal, state, and local agencies; water supply planning assistance

A. The Board (Water Control) shall prepare plans and programs for the management of the water resources of this Commonwealth in such a manner as to encourage, promote and secure the maximum beneficial use and control thereof. These plans and programs shall be prepared for each major river basin of this Commonwealth, and appropriate subbasins therein, including specifically the Potomac-Shenandoah River Basin, the Rappahannock River Basin, the York River Basin, the James River Basin, the Chowan River Basin, the Roanoke River Basin, the New River Basin, the Tennessee-Big Sandy River Basin, and for those areas in the Tidewater and elsewhere in the Commonwealth not within these major river basins. Reports for each basin shall be published by the Board.

§ 62.1-44.39 Technical advice and information to be made available

The Board may make available technical advice and information on water resources to any agency or political subdivision of this Commonwealth, any committee, association or person interested in the conservation or use of water resources, any interstate agency or any agency of the federal government, all for the purpose of assisting in the preparation or effectuation of any plan or program concerning the use or control of the water resources of this Commonwealth in harmony with the state water resources policy or otherwise with the public interest in encouraging, promoting and securing the maximum beneficial use and control of the water resources of this Commonwealth.

§ 62.1-242 Surface Water Management Areas

§ 62.1-248 Permits

A. Any permit issued by the Board shall include a flow requirement appropriate for the protection of beneficial instream uses. In determining the level of flow in need of

protection, the Board shall consider, among other things, recreational and aesthetic factors and the potential for substantial and long-term adverse impact on fish and wildlife found in that particular surface water management area. In its permit decision, the Board shall attempt to balance offstream and instream water uses so that the welfare of the citizens of the Commonwealth is maximized without imposing unreasonable burdens on any individual water user or water-using group.

Permit conditions may include, but are not limited to, the following: (i) maximum amounts which may be withdrawn, (ii) times of the day or year during which withdrawals may occur, and (iii) requirements for voluntary and mandatory conservation measures.

Non Point Source

§ 10.1-104.1 Department of Conservation and Recreation to be lead agency for nonpoint source pollution program

§ 10.1-505 Duties of (Virginia Soil and Water Conservation) Board

In addition to other duties and powers conferred upon the Board, it shall have the following duties and powers:

...9. To provide for the conservation of soil and water resources, control and prevention of soil erosion, flood water and sediment damages thereby preserving the natural resources of the Commonwealth.

Virginia Erosion and Sediment Control Law, Article 4 (§ 10.1-560 et seq.)

§ 10.1-561

A. The State Soil and Water Conservation Board is charged with developing a program and promulgating regulations for the effective control of soil erosion, sediment deposition and nonagricultural runoff which must be met in any control program to prevent the unreasonable degradation of properties, stream channels, waters and other natural resources in accordance with the Administrative Process Act (§ 9-6.14:1 et seq.).

§ 10.1-562 Local erosion and sediment control programs

A. Each district in the Commonwealth is to adopt and administer an erosion and sediment control program for any area within the district for which a county, city, or town does not have an approved erosion and sediment control program.

To carry out its program the district must adopt regulations consistent with the state program. In areas where there is no district, a county, city, or town must adopt and administer its own erosion and sediment control program. Any county, city, or town within a district may adopt and administer an erosion and sediment control program. Any town, lying within a county which has adopted its own erosion and sediment control program, may adopt its own program or become subject to the county program. If a town lies within the boundaries of more than one county, the town shall be considered for the purposes of this article to be wholly within the county in which the larger portion of the town lies. Any county, city, or town with an erosion and sediment control program may designate its department of public works or a similar local government department as the

plan-approving authority or may designate the district as the plan-approving authority for all or some of the conservation plans.

10.1-603.3 Counties, cities and towns may by ordinance establish stormwater management programs as a local option; effective date

Each locality may, by ordinance, to be effective on or after July 1, 1990, establish a local stormwater management program which shall include, but is not limited to, the following:

1. Consistency with regulations promulgated in accordance with provisions of this article;
2. Provisions for long-term responsibility for and maintenance of stormwater management control devices and other techniques specified to manage the quality and quantity of runoff; and
3. Provisions for the integration of locally adopted stormwater management programs with local erosion and sediment control, flood insurance, flood plain management and other programs requiring compliance prior to authorizing construction in order to make the submission and approval of plans, issuance of permits, payment of fees, and coordination of inspection and enforcement activities more convenient and efficient both for the local governments and those responsible for compliance with the programs.

§ 10.1-603.4 Development of regulations

The Board is authorized to promulgate regulations which specify minimum technical criteria and administrative procedures for stormwater management programs in Virginia. In order to inhibit the deterioration of existing waters and waterways, the regulations shall:

1. Require that state and local programs maintain after-development runoff rate of flow, as nearly as practicable, as the pre-development runoff characteristics;
2. Establish minimum design criteria for measures to control nonpoint source pollution and localized flooding, and incorporate the stormwater management regulations promulgated pursuant to the Virginia Erosion and Sediment Control Law, Article 4 (§ 10.1-560 et seq.) of Chapter 5 of this title, as they relate to the prevention of stream channel erosion. These criteria shall be periodically modified as required in order to reflect current engineering methods;
3. Require the provision of long-term responsibility for and maintenance of stormwater management control devices and other techniques specified to manage the quality and quantity of runoff; and

§ 10.1-701 Duties of Department (Conservation and Recreation)

The Department shall have the duty to:

1. Coordinate shore erosion control programs of all state agencies and institutions to implement practical solutions to shoreline erosion problems; however, such coordination shall not restrict the statutory authority of the individual agencies having responsibilities

relating to shore erosion control;

2. Secure the cooperation and assistance of the United States and any of its agencies to protect waterfront property from destructive shore erosion;

3. Evaluate the effectiveness and practicability of current shore erosion control programs; and

4. Explore all facets of the problems and alternative solutions to determine if other practical and economical methods and practices may be devised to control shore erosion.

§ 10.1-702 Shoreline Erosion Advisory Service

The Department is authorized to assist in carrying out the coordination responsibility of shore erosion control programs as herein assigned, and to establish a Shoreline Erosion Advisory Service.

§ 10.1-706 Duties of the Department (DCR)

The Department shall:

1. Promote understanding of the value of public beaches and the causes and effects of erosion;

2. Make available information concerning erosion of public beaches;

3. Encourage research and development of new erosion control techniques and new sources of sand for public beach enhancement.

Title 10.1 Chapter 21 Chesapeake Bay Preservation Act

§ 10.1-2100 Cooperative state-local program. (Chesapeake Bay Local Assistance Board)

A. Healthy state and local economies and a healthy Chesapeake Bay are integrally related; balanced economic development and water quality protection are not mutually exclusive. The protection of the public interest in the Chesapeake Bay, its tributaries, and other state waters and the promotion of the general welfare of the people of the Commonwealth require that: (i) the counties, cities, and towns of Tidewater Virginia incorporate general water quality protection measures into their comprehensive plans, zoning ordinances, and subdivision ordinances; (ii) the counties, cities, and towns of Tidewater Virginia establish programs, in accordance with criteria established by the Commonwealth, that define and protect certain lands, hereinafter called Chesapeake Bay Preservation Areas, which if improperly developed may result in substantial damage to the water quality of the Chesapeake Bay and its tributaries; (iii) the Commonwealth make its resources available to local governing bodies by providing financial and technical assistance, policy guidance, and oversight when requested or otherwise required to carry out and enforce the provisions of this chapter; and (iv) all agencies of the Commonwealth exercise their delegated authority in a manner consistent with water quality protection provisions of local comprehensive plans, zoning ordinances,

and subdivision ordinances when it has been determined that they comply with the provisions of this chapter.

B. Local governments have the initiative for planning and for implementing the provisions of this chapter, and the Commonwealth shall act primarily in a supportive role by providing oversight for local governmental programs, by establishing criteria as required by this chapter, and by providing those resources necessary to carry out and enforce the provisions of this chapter.

§ 10.1-2111 Local government requirements for water quality protection.

Local governments shall employ the criteria promulgated by the Board to ensure that the use and development of land in Chesapeake Bay Preservation Areas shall be accomplished in a manner that protects the quality of state waters consistent with the provisions of this chapter.

Virginia Water Quality Improvement Act of 1997 (10.1-2117~10.1-2134)

§ 10.1-2125 Powers and duties of the Board (of Conservation and Recreation)

The Board, in meeting its responsibilities under the cooperative program established by this article, after consultation with other appropriate agencies, is authorized and has the duty to:

Encourage and promote nonpoint source pollution control and prevention...

§ 10.1-2127 Nonpoint source pollution water quality assessment

By July 1, 1998, and biennially thereafter, the Department, in conjunction with other state agencies, is charged with evaluating and reporting on the impacts of nonpoint source pollution on water quality and water quality improvement to the Governor and the General Assembly. The evaluation shall at a minimum include considerations of water quality standards, fishing bans, shellfish contamination, aquatic life monitoring, sediment sampling, fish tissue sampling and human health standards. The report shall, at a minimum, include an assessment of the geographic regions where water quality is demonstrated to be impaired or degraded as the result of nonpoint source pollution and an evaluation of the basis or cause for such impairment or degradation.

§ 58.1-3665 Partial exemption for erosion control improvements A. Real estate that has been improved through the placement of rock or concrete breakwaters, bulkheads, gabions, revetments, or similar structural improvements installed to control erosion, and is used primarily for the purpose of abating or preventing pollution of the waters of the Commonwealth, is hereby declared to be a separate class of property and shall constitute a classification for local taxation separate from other classifications of real property. The governing body of any county, city or town may, by ordinance, provide for the partial exemption from local taxation of such real estate, subject to such conditions and restrictions as the ordinance may prescribe. The governing body of a county, city or town may establish criteria for determining whether real estate qualifies for the partial exemption authorized by this section.

Shellfish Waters

§ 32.1-246 Marinas.

A. The Board (Health) is empowered and directed to adopt and promulgate all necessary regulations establishing minimum requirements for adequate sewerage facilities at marinas and other places where boats are moored according to the number of boat slips and persons such marinas and places are designed to accommodate. The provisions of this section shall be applicable to every such marina and place regardless of whether such establishment serves food.

§ 28.2-801 Authority to promulgate regulations; enforcement

A. The State Health Commissioner and the Commissioner of Marine Resources shall enforce the provisions of this chapter and regulations promulgated thereunder.

§ 28.2-804 Polluted ground; crustacea, finfish or shellfish

When the State Health Commissioner determines, as a result of an examination, analysis or inspection, that (i) the crustacea, finfish, or shellfish that are being sold, are or may be unfit for market; or (ii) a growing area is polluted or has a pollution hazard so great as to render it an unfit ground from which to take crustacea, finfish or shellfish for processing or consumption; or (iii) the establishment is so insanitary as to render it an unfit place in which to prepare crustacea, finfish or shellfish for market, he must notify the Commissioner of Marine Resources and the owner or operator of such grounds, establishment or other place that the crustacea, finfish or shellfish are unfit for market.

§ 28.2-806 State Health Commissioner to establish standards

The State Health Commissioner may establish and change standards, examinations, analyses and inspections which control the taking and marketing from a health standpoint, of crustacea, finfish or shellfish. He shall be the sole judge of whether or not such crustacea, finfish or shellfish are sanitary and fit for market.

§ 28.2-807 Condemnation of polluted growing area; procedure

If, after examination of the crustacea, finfish or shellfish in a growing area, or the bottom in or adjacent to such area, or the water over such area, or the sanitary or pollution conditions adjacent to or in near proximity to a growing area, the State Health Commissioner determines that the crustacea, finfish or shellfish are unfit for market, he must, after notifying the Commissioner of Marine Resources, establish boundaries of the area in which the crustacea, finfish or shellfish are located or planted. This area must be condemned and remain so until the Health Commissioner finds such crustacea, finfish or shellfish, or area, sanitary and not polluted. The Commissioner of Marine Resources, with instructions from the State Health Commissioner, shall erect markers or signs designating condemned areas. The necessary markers or signs are to be supplied to the Commissioner of Marine Resources by the State Health Commissioner.

Marine Resources

§ 28.2-101 Jurisdiction of Virginia Marine Resources Commission

The jurisdiction of the Commission shall include the Commonwealth's territorial sea and extend to the fall line of all tidal rivers and streams except in the case of state-owned bottomlands where jurisdiction extends throughout the Commonwealth. The Commission shall have jurisdiction over all commercial fishing and all marine fish, marine shellfish, marine organisms, and habitat in such areas.

§ 28.2-203 Commission to prepare fishery management plans; standards

The Commission is charged with preparing and implementing fishery management plans so as to preserve the Commonwealth's exclusive right to manage the fisheries within its territorial jurisdiction.

§ 28.2-1203 Unlawful use of subaqueous beds; penalty

A. It shall be unlawful for any person to build, dump, trespass or encroach upon or over, or take or use any materials from the beds of the bays, ocean, rivers, streams, or creeks which are the property of the Commonwealth, unless such act is performed pursuant to a permit issued by the (Marine Resources) Commission... .

§ 28.2-1204.1 Submerged aquatic vegetation

The Commission shall, in consultation with the Virginia Institute of Marine Science, develop guidelines containing criteria for use in:

1. Defining existing beds of submerged aquatic vegetation; and
2. Delineating areas where there is potential for submerged aquatic vegetation restoration.

§ 28.2-1208 Granting easements in or leasing the beds of certain waters

A. The Marine Resources Commission may, with the approval of the Attorney General and the Governor, grant easements in or lease the beds of the waters of the Commonwealth outside of the Baylor Survey. Every easement or lease executed pursuant to this section shall be for a period not to exceed five years and shall specify the rent royalties and such other terms deemed expedient and proper. Such easements and leases may include the right to renew the same for an additional period not to exceed five years, and, in addition to any other rights, may authorize the grantees and lessees to prospect for and take from the bottoms covered thereby, oil, gas, and other specified minerals and mineral substances. However, no easement or lease shall in any way affect or interfere with the rights vouchsafed to the people of the Commonwealth concerning fishing, fowling, and the catching and taking of oysters and other shellfish in and from the leased bottoms or the waters above.

§ 28.2-1301 Powers and duties of the Marine Resources Commission The Commission shall preserve and prevent the despoliation and destruction of wetlands while accommodating necessary economic development in a manner consistent with wetlands preservation.

§ 28.2-1302 Adoption of wetlands zoning ordinance; terms of ordinance

Any county, city or town (In Tidewater Virginia) may adopt the following ordinance,

which, after October 1, 1992, shall serve as the only wetlands zoning ordinance under which any wetlands board is authorized to operate. Any county, city, or town which has adopted the ordinance prior to October 1, 1992, shall amend the ordinance to conform it to the ordinance contained herein by October 1, 1992.

Aquatic Resources

§ 29.1-532 Dams and fishways

Any dam or other object in a watercourse, which obstructs navigation or the passage of fish, shall be deemed a nuisance, unless it is used to work a mill, factory or other machine or engine useful to the public, and is allowed by law or order of court. Any person owning or having control of any dam or other obstruction in the streams of the Commonwealth which may interfere with the free passage of anadromous and other migratory fish, shall provide every such dam or other obstruction with a suitable fishway unless the Board (Game and Inland Fisheries) considers it unnecessary.

§ 33.1-256 Bridge not to obstruct navigation or fish

§ 62.1-194.2 Throwing trash, etc., into or obstructing river, creek, stream or swamp
It shall be unlawful for any person to throw or otherwise dispose of trash, debris, tree limbs, logs, or fell timber or make or cause to be made any obstruction which exists for more than a week (excepting a lawfully constructed dam) in, under, over or across any river, creek, stream, or swamp, so as to obstruct the free passage of boats, canoes, or other floating vessels, or fish in such waters. The provisions of this section shall be enforceable by duly authorized state and local law-enforcement officials and by game wardens whose general police power under § 29.1-205 and forest wardens whose general police powers under § 10.1-1135 shall be deemed to include enforcement of the provisions of this section.

Endangered Species

§ 3.1-1020 et seq. Short title This chapter shall be known and may be cited as the "Endangered Plant and Insect Species Act."

D. The Commissioner (Department of Agriculture and Consumer Services or his designee) may establish programs as are deemed necessary for the management of endangered or threatened species. The Commissioner may issue a permit under certain circumstances for the taking, possessing, buying, selling, transporting, exporting or shipping of any endangered or threatened species which appears on the state list of endangered or threatened species for scientific, biological, or educational purposes or for propagation in order to ensure their survival, provided that such action does not violate federal laws or regulations.

§ 10.1-211. Additional duties of the Department. (DCR)

In addition to other duties conferred by law, the Department shall, subject to the provisions of this article:

1. Preserve the natural diversity of biological resources of the Commonwealth.
2. Maintain a Natural Heritage Program to select and nominate areas containing natural heritage resources for registration, acquisition, and dedication of natural areas and natural area preserves.
3. Develop and implement a Natural Heritage Plan that shall govern the Natural Heritage Program in the creation of a system of registered and dedicated natural area preserves.
4. Publish and disseminate information pertaining to natural areas and natural area preserves.
5. Grant permits to qualified persons for the conduct of scientific research and investigations within natural area preserves.
6. Provide recommendations to the Commissioner of the Department of Agriculture and Consumer Services and to the Board of Agriculture and Consumer Services on species for listing under the Virginia Endangered Plant and Insect Act, prior to the adoption of regulations therefor.
7. Provide recommendations to the Executive Director of the Department of Game and Inland Fisheries and to the Board of Game and Inland Fisheries on species for listing under the Virginia Endangered Species Act, prior to the adoption of regulations therefor.
8. Cooperate with other local, state and federal agencies in developing management plans for real property under their stewardship that will identify, maintain and preserve the natural diversity of biological resources of the Commonwealth.
10. Provide for management, development and utilization of any lands purchased, leased or otherwise acquired and enforce the provisions of this article governing natural area preserves, the stewardship thereof, the prevention of trespassing thereon, or other actions deemed necessary to carry out the provisions of this article.

§ 29.1-566 Regulations

The Board (of Game and Inland Fisheries) is authorized to adopt the federal list, as well as modifications and amendments thereto by regulations; to declare by regulation, after consideration of recommendations from the Director of the Department of Conservation and Recreation and from other reliable data sources, that species not appearing on the federal lists are endangered or threatened species in Virginia; and to prohibit by regulation the taking, transportation, processing, sale, or offer for sale within the Commonwealth of any threatened or endangered species of fish or wildlife.

Terrestrial Habitat

Title 15.2 - Counties, Cities and Towns Q Subtitle 15.2-100 R General Provisions; Charters; Other Forms and Organization of Counties

§ 15.2-4301 Declaration of policy findings and purpose

It is the policy of the Commonwealth to conserve and protect and to encourage the development and improvement of the Commonwealth's agricultural and forestal lands for the production of food and other agricultural and forestal products. It is also the policy of the Commonwealth to conserve and protect agricultural and forestal lands as valued natural and ecological resources which provide essential open spaces for clean air sheds, watershed protection, wildlife habitat, as well as for aesthetic purposes. It is the purpose of this chapter to provide a means for a mutual undertaking by landowners and localities to protect and enhance agricultural and forestal land as a viable segment of the Commonwealth's economy and as an economic and environmental resource of major importance.

§ 15.2-4401 Declaration of policy findings and purpose It is state policy to encourage localities of the Commonwealth to conserve and protect and to encourage the development and improvement of their agricultural and forestal lands for the production of food and other agricultural and forestal products. It is also state policy to encourage localities of the Commonwealth to conserve and protect agricultural and forestal lands as valued natural and ecological resources which provide essential open spaces for clean air sheds, watershed protection, wildlife habitat, aesthetic quality and other environmental purposes. It is the purpose of this chapter to provide a means by which localities may protect and enhance agricultural and forestal lands of local significance as a viable segment of the local economy and as an important economic and environmental resource.

§ 29.1-103 Powers and duties of the Board

The Board (of Game and Inland Fisheries) is responsible for carrying out the purposes and provisions of this title and is authorized to:

- ...3. Conduct operations for the preservation and propagation of game birds, game animals, fish and other wildlife in order to increase, replenish and restock the lands and inland waters of the Commonwealth.
4. Purchase, lease, or otherwise acquire lands and waters for game and fish refuges, preserves or public shooting and fishing, and establish such lands and waters under appropriate regulations.
5. Acquire by purchase, lease, or otherwise, lands and structures for use as public landings, wharves, or docks; to improve such lands and structures; and to control the use of all such public landings, wharves, or docks by regulation.
6. Acquire and introduce any new species of game birds, game animals or fish on the lands and within the waters of the Commonwealth.
7. Restock, replenish and increase any depleted native species of game birds, game animals, or fish.

...10. Control land owned by and under control of the Commonwealth in Back Bay, its tributaries and the North Landing River from the North Carolina line to North Landing Bridge. The Board shall regulate or prohibit by regulation any drilling, dredging or other operation designed to recover or obtain shells, minerals, or other substances in order to prevent practices and operations which would harm the area for fish and wildlife.

11. Exercise powers it may deem advisable for conserving, protecting, replenishing, propagating and increasing the supply of game birds, game animals, fish and other wildlife of the Commonwealth.

...13. Administer and manage the Virginia Fish Passage Grant and Revolving Loan Fund pursuant to Article 1.1 (§ 29.1-101.2 et seq.) of Chapter 1 of this title.

Flood Protection

Title 10.1 - Conservation Q Subtitle 10.1-100 R Activities Administered by the Department of Conservation and Recreation

§ 10.1-505 Duties of Board (Conservation and Recreation)

... 7. To receive, review, approve or disapprove applications for assistance in planning and carrying out works of improvement under the Watershed Protection and Flood Prevention Act (Public Law 566 - 83rd Congress, as amended), and to receive, review and approve or disapprove applications for any other similar soil and water conservation programs provided in federal laws which by their terms or by related executive orders require such action by a state agency.

§ 10.1-602 Powers and duties of Department (DCR)

The Department shall:

1. Develop a flood protection plan for the Commonwealth. This plan shall include:

- a. An inventory of flood-prone areas;
- b. An inventory of flood protection studies;
- c. A record of flood damages;
- d. Strategies to prevent or mitigate flood damage; and
- e. The collection and distribution of information relating to flooding and flood plain management.

2. Serve as the coordinator of all flood protection programs and activities in the Commonwealth, including the coordination of federal flood protection programs administered by the United States Army Corps of Engineers, the United States Department of Agriculture, the Federal Emergency Management Agency, the United

States Geological Survey, the Tennessee Valley Authority, other federal agencies and local governments.

§ 10.1-658 State interest in flood control A. The General Assembly declares that storm events cause recurrent flooding of Virginia's land resources and result in the loss of life, damage to property, unsafe and unsanitary conditions and the disruption of commerce and government services, placing at risk the health, safety and welfare of those citizens living in flood-prone areas of the Commonwealth. Flood waters disregard jurisdictional boundaries, and the public interest requires the management of flood-prone areas in a manner which prevents injuries to persons, damage to property and pollution of state waters.

Interjurisdictional Coordination

§ 10.1-1194. Watershed Planning and Permitting Coordination Task Force created; membership; duties.

A. There is hereby created the Watershed Planning and Permitting Coordination Task Force, which shall be referred to in this article as the Task Force. The Task Force shall be composed of the Directors, or their designees, of the Department of Environmental Quality, the Department of Conservation and Recreation, the Department of Forestry, the Department of Mines, Minerals and Energy, the Chesapeake Bay Local Assistance Department and the Commissioner, or his designee, of the Department of Agriculture and Consumer Services.

§ 10.1-1196 Guiding definition and principles

"Watershed planning" is the process of studying the environmental and land use features of a watershed to identify those areas that should be protected and preserved, measures to be utilized to protect such areas, and the character of development in order to avoid and minimize disruption of natural systems.

Stream systems tend to reflect the character of the watershed they drain. Unchecked physical conversion in a watershed accompanying urbanization leads to degraded streams and wetlands. As urbanization continues to spread across the state, natural vegetation, slope and water retention characteristics are replaced by impervious surfaces disrupting the dynamic balance of the natural hydrologic cycle. Poorly planned development can increase peak storm flows and runoff volume, lower water quality and aesthetics, and cause flooding and degradation of downstream communities and ecosystems.

Intrajurisdictional Coordination: Local Government Authority

Title 15.2 - Counties, Cities and Towns Q Subtitle 15.2-100 R General Provisions; Charters; Other Forms and Organization of Counties

§ 15.2-2223 Comprehensive plan to be prepared and adopted; scope and purpose
The local planning commission shall prepare and recommend a comprehensive plan for

the physical development of the territory within its jurisdiction and every governing body shall adopt a comprehensive plan for the territory under its jurisdiction.

In the preparation of a comprehensive plan the commission shall make careful and comprehensive surveys and studies of the existing conditions and trends of growth, and of the probable future requirements of its territory and inhabitants. The comprehensive plan shall be made with the purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the territory which will, in accordance with present and probable future needs and resources, best promote the health, safety, morals, order, convenience, prosperity and general welfare of the inhabitants.

It may include, but need not be limited to:

1. The designation of areas for various types of public and private development and use, such as different kinds of residential, business, industrial, agricultural, mineral resources, conservation, recreation, public service, flood plain and drainage, and other areas;
2. The designation of a system of transportation facilities such as streets, roads, highways, parkways, railways, bridges, viaducts, waterways, airports, ports, terminals, and other like facilities;
3. The designation of a system of community service facilities such as parks, forests, schools, playgrounds, public buildings and institutions, hospitals, community centers, waterworks, sewage disposal or waste disposal areas, and the like;
4. The designation of historical areas and areas for urban renewal or other treatment;
5. The designation of areas for the implementation of reasonable ground water protection measures;
6. An official map, a capital improvements program, a subdivision ordinance, a zoning ordinance and zoning district maps, mineral resource district maps and agricultural and forestal district maps, where applicable;
7. The location of existing or proposed recycling centers; and ...

§ 15.2-2224 Surveys and studies to be made in preparation of plan; implementation of plan

A. In the preparation of a comprehensive plan, the local planning commission shall survey and study such matters as the following:

1. Use of land, preservation of agricultural and forestal land, production of food and fiber, characteristics and conditions of existing development, trends of growth or changes, natural resources, historic areas, ground water, surface water, geologic factors, population factors, employment, environmental and economic factors, existing public facilities, drainage, flood control and flood damage prevention measures, transportation facilities, the need for affordable housing in both the locality and planning district within

which it is situated, and any other matters relating to the subject matter and general purposes of the comprehensive plan.

§ 15.2-2283 Purpose of zoning ordinances

Zoning ordinances shall be for the general purpose of promoting the health, safety or general welfare of the public and of further accomplishing the objectives of § 15.2-2200. To these ends, such ordinances shall be designed to give reasonable consideration to each of the following purposes, where applicable: ... (iv) to facilitate the provision of adequate... disaster evacuation, water, sewerage, flood protection, schools, parks, forests, playgrounds, recreational facilities, airports and other public requirements; (v) to protect against destruction of or encroachment upon historic areas; ... (viii) to provide for the preservation of agricultural and forestal lands and other lands of significance for the protection of the natural environment;.... Such ordinance may also include reasonable provisions, not inconsistent with applicable state water quality standards, to protect surface water and ground water as defined in § 62.1-255.