MANAGEMENT OF VIRGINIA'S MARINE WETLANDS: EVOLUTION AND CURRENT STATUS OF THE INSTITUTIONAL FRAMEWORK

by

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ALTERNATIVE MANAGEMENT STRATEGIES FOR VIRGINIA'S COASTAL WETLANDS

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ABSTRACT

The institutional framework for management of Virginia's marine wetlands is a complex array of laws and programs resulting from a long evolutionary process. This report discusses the elements of this framework relating to (1) governmental regulation of privately owned wetlands and (2) public land acquisition and control as a factor in wetlands management.

Regulatory programs focusing on use of privately owned wetlands involve federal, state, and local controls. Federal controls have evolved from programs originally focusing on such objectives as protection of navigation, fish and wildlife management, protection of environmental quality, and management of coastal resources. At present the most significant federal measure of a direct regulatory nature is the permit program operated by the U.S. Army Corps of Engineers pursuant to section 404 of the Clean Water Act, originally adopted in 1972. This program is applicable to wetlands adjacent to a wide range of waters, both coastal and inland. The permitting process under section 404 is constrained by a variety of other institutional mechanisms to protect environmental quality and achieve other objectives. State and local controls over coastal wetlands use had their origins in studies of marine resources initiated in 1966. These studies culminated in the passage of the Virginia Wetlands Act in 1972. This legislation establishes a permitting process which can be administered by locally appointed wetlands boards, subject to state oversight by the Virginia Marine Resources Commission. As in the case of the federal program, the local/state permitting process is subject to several institutional constraints related to a variety of objectives. Substantial activity focusing on management of coastal resources in general has been initiated, but at present the state does not have an approved management program under the federal coastal zone management program.

Public ownership of land has constituted an important factor in the management of Virginia's marine wetlands. Several land acquisition programs have evolved with potential applicability to wetlands, including programs for preservation of wildlife habitat, acquisition of recreational lands, and preservation of selected natural environments. Continuing institutional mechanisms exist in these areas with the potential for additional expansion of public wetlands acreage. Wetlands protection has been emphasized as an objective in the management of existing public lands, especially in the case of federal lands.

The existence of a variety of institutional mechanisms for regulation of private wetlands' use and for the acquisition and control of wetlands by public bodies creates a need for coordination among governmental entities and programs. Such coordination has been effected to some extent, but the number of relatively independent institutional mechanisms in the area of wetlands management creates an institutional complexity not equalled in many areas of environmental concern.

LIST OF ABBREVIATIONS

Due to the extensive number of statutes, agencies, and programs discussed in this report, acronyms have been utilized to allow precise reference. Full titles are used only when first reference is made. For convenient reference, the following list is provided.

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AA - Antiquities Act
CGIF - Commission of Game and Inland Fisheries
COE - Corps of Engineers
COR - Commission of Outdoor Recreation
CPSDPA - Coastal Primary Sand Dune Protection Act
CWA - Clean Water Act
CZMA - Coastal Zone Management Act
DCED - Department of Conservation and Economic Development
DJA - Dingell-Johnson Act
DSPCA - Department of State Planning and Community Affairs
EIS - Environmental Impact Statement
EPA - Environmental Protection Agency
ESA - Endangered Species Act of 1973
FDPA - Flood Disaster Protection Act of 1973
FDRA - Flood Damage Reduction Act
FEMA - Federal Emergency Management Agency
FWA - Fish and Wildlife Act of 1956
FWCA - Fish and Wildlife Coordination Act
FWPCA - Federal Water Pollution Control Act Amendments of 1972
FWPRA - Federal Water Project Recreation Act
HCDA - Housing and Community Development Act of 1974
LWCFA - Land and Water Conservation Fund Act
MBCA - Migratory Bird Conservation Act
MBHSA - Migratory Bird Hunting Stamp Act
MPRSA - Marine Protection Research and Sanctuaries Act of 1972
MREDA - Marine Resources and Engineering Development Act of 1966
MRC - Marine Resources Commission
NEPA - National Environmental Policy Act of 1969
NFIA - National Flood Insurance Act of 1968
NHPA - National Historic Preservation Act of 1966
NOAA - National Oceanic and Atmospheric Administration
OMB - U.S. Office of Management and Budget
OSLA - Open Space Land Act
PRA - Pittman-Robertson Act
RHA - Rivers and Harbors Act of 1899
RRA - Refuge Recreation Act
SWCB - State Water Control Board
USBC - Uniform Statewide Building Code
VAA - Virginia Antiquities Act

LIST OF ABBREVIATIONS
(continued)

VCOE - Virginia Council on the Environment
VCSC - Virginia Coastal Study Commission
VIMS - Virginia Institute of Marine Science
VSRA - Virginia Scenic Rivers Act
VWA - Virginia Wetlands Act
WA - Wilderness Act
WBA - Water Bank Act
WLA - Wetlands Loan Act
WRDA of 1974 - Water Resources Development Act of 1974
WRDA of 1976 - Water Resources Development Act of 1976
WSRA - Wild and Scenic Rivers Act

PREFACE

This report is a result of research funded by the National Oceanic and Atmospheric Administration, Office of Sea Grant, Department of Commerce, under grants #04-6-158-44086 and #04-7-158-44086. The U.S. government is authorized to produce and distribute reprints for governmental purposes, not withstanding any copyright notations that may appear hereon.

The results of the study are reported in a series of project papers under the general title: "Alternative Management Strategies for Virginia's Coastal Wetlands" with project paper titles as follows:

		Sea Grant Project Number
1.	Alternative Management Strategies for Virginia's Coastal Wetlands: A Program of Study	Not Numbered
2.	Economic Values Attributable to Virginia's Coastal Wetlands as Inputs in Oyster Production	VPI-SG-77-04
3.	Economic Implications of Environmental Legislation for Wetlands	VPI-SG-77-05
4.	Estimating the Economic Value of Natural Coastal Wetlands: A Cautionary Note	VPI-SG-77-06
5.	Existing Legal Framework for Management of Virginia Coastal Wetlands	VPI-SG-77-07 (replaced by VPI-SG-79-10)
6.	The Development Value of Natural Coastal Wetlands: A Framework for Analysis of Residential Values	VPI-SG-77-08
7.	The Economics of Wetlands Preservation in Virginia	VPI-SG-79-07
8.	Estimating the Economic Value of Coastal Wetlands: Conceptual Issues and Research Needs	VPI-SG-79-08
9.	Methodological Issues Associated with Estimation of the Economic Value of Coastal Wetlands in Improving Water Quality	VPI-SG-79-09
10.	Management of Virginia's Marine Wetlands: Evolution and Current Status of the Institutional Framework	VPI-SG-79-10
11.	Historical Changes in Coastal Wetlands in Two Virginia Counties: Implications for Wetlands Management	VPI-SG-80-01

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MANAGEMENT OF VIRGINIA'S MARINE WETLANDS:

EVOLUTION AND CURRENT STATUS OF THE INSTITUTIONAL FRAMEWORK

by

William E. Cox

INTRODUCTION

The institutional framework for management of Virginia's marine wetlands consists of a complex array of federal and state laws and administrative programs reflecting diverse origins and resulting from long evolutionary processes. These laws and programs include a diversity of activities such as research, planning, governmental regulation, and land acquisition and management. This report addresses all these diverse elements of the institutional framework to some extent, but emphasis is placed on (1) governmental regulation of the use of privately owned wetlands and (2) public land acquisition and control as a factor in wetlands management.

GOVERNMENTAL CONTROLS AFFECTING USE OF PRIVATE WETLANDS

Governmental programs that restrict use of privately owned wetlands exist at the federal and state levels of government. Controls also exist at the local level, but they can be considered to be a component of state controls since they are mandated by state law. Some of these laws and programs are distinctly federal or state, but others involve considerable interaction between the two levels of government. In some cases, state activities have been initiated in response to a federal initiative. This situation dictates that federal institutional arrangements be considered prior to those at the state level.

The analysis of applicable regulatory measures at both the federal and state levels is divided into two components: (1) the evolution of controls and (2) currently existing controls. The first component presents a chronology of institutional developments and identifies some of the forces and trends responsible for development while the second provides an overview of control measures currently in effect. The analysis in each component is restricted to institutional arrangements with special applicability to wetlands and does not attempt to serve as a complete cataloging of all governmental regulatory measures having a potential impact on wetlands. Therefore a variety of general programs for environmental protection are discussed only incidentally or not included.

Evolution of Federal Controls

The evolution of federal regulatory programs affecting use of privately owned coastal wetlands encompasses the development of several interacting but separate measures for natural resource management. Included are regulatory programs to protect the navigable capacity of waterways, fish and wildlife laws, flood plain management activities, water quality controls, the coastal zone management program, as well as general measures to protect environmental quality. Although most of these programs did not focus on wetlands protection as a primary objective when originally conceived, several have substantial actual or potential impact on wetlands use.

Development of Controls Prior to 1972

One of the earliest federal controls affecting wetlands use consisted of efforts to prohibit obstruction of navigable waters. Although earlier measures [1] existed, the primary legislation for protection of navigation has consisted of the Rivers and Harbors Act of 1899 [2] (RHA), administered by the U.S. Army Corps of Engineers (COE). When originally enacted, RHA applied to essentially all forms of potential obstruction to navigation, but this jurisdiction has been restricted by adoption of additional controls applicable to specific types of potential obstructions. For example, passage of the Federal Power Act [3] (FPA) in 1920 created specific controls for dam construction; authority relating to construction of bridges and causeways was transferred in 1966 to the Secretary of Transportation by legislation creating the Department of Transportation [4]; and the Federal Water Pollution Control Act Amendments of 1972 [5] (FWPCA) created specific controls for dredge and fill activities and established a waste discharge permit program to replace the Refuse Act program that had been created under RHA by executive order [6]. An additional jurisdictional modification resulted from a 1976 statutory enactment providing that certain provisions of RHA do not apply to an intrastate body of water considered navigable solely on the basis of historical use in interstate commerce [7]. Regardless of these restrictions, however, RHA has constituted a major federal control over navigable waters and continues to serve as the basis for a COE permit program.

Protection of the navigable capacity of navigable waters by restricting encroachment and obstruction by private parties was the sole original objective of RHA. Consequently, RHA jurisdiction traditionally has been defined by the judicial definition of navigable waters based on a waterway's potential for use in interstate or foreign commerce or its potential impact on such waters. High water mark was originally established and continues to serve as the general shoreward limit of jurisdiction [8]. However, RHA provided for establishment of harbor lines to delineate the shoreward extent of the area of interest for navigation purposes [9]. Shoreward of such lines, construction was given blanket authorization and did not require individual authorizing permits prior to 1970 [10]. Of course the existence of controls over activities that would have affected navigable capacity would be expected to have prevented some development in coastal areas; therefore wetlands protection was accomplished to some extent strictly as an incidental effect of navigation protection.

One of the first expansions in scope of navigation controls ultimately affecting wetlands use consisted of enactment of legislation for fish and wildlife protection. Due to the fundamental dependence of fish and wildlife on suitable habitat, management of these resources requires management of land and water resources. Since wetlands perform a variety of functions in the life cycle of certain fish and wildlife, institutional mechanisms for protection of fish and wildlife have had considerable impact on wetlands use. The first major legislation providing for consideration of fish and wildlife impacts of water resource projects was the Fish and Wildlife Coordination Act [11] (FWCA), originally passed in 1934. The primary provisions of FWCA at first were requirements for (1) consultation with the Bureau of Fisheries (one of the predecessor agencies of the Fish and Wildlife Service) prior to the construction of dams and (2) the opportunity to use impounded waters for fish culture and migratory bird resting and nesting areas. The scope and potential influence of FWCA were expanded significantly by subsequent amendments. Some of the more substantial expansions occurred in 1958 when federal agencies were instructed to give fish and wildlife values consideration equal to that given other aspects of water resources development. The types of water projects to which FWCA's consultation requirement applies were expanded at that time to include channel dredging and other modifications of any body of water [12].

In response to the growing concern for environmental values, COE modified its permitting procedures in the 1967–1970 period to provide for evaluation of environmental factors. Three significant changes were instituted. The first consisted of a 1967 administrative agreement between the Secretary of the Army and Secretary of the Interior concerning coordination between COE and agencies of the Department of Interior having fish and wildlife responsibilities [13]. The second revision occured in 1968 when the Department of the Army expanded its guidelines for review of permit applications under RHA to include environmental factors in addition to navigation concerns [14]. Application reviews thereafter were to consider such matters as fish and wildlife, ecology, water quality, aesthetics, and the general public interest. The third modification in procedures occured in 1970 when blanket authorization for construction shoreward of established harbor lines was removed [15]. Thereafter individual permits and the associated reviews were required for all projects within COE jurisdiction, the limits of which traditionally had been recognized as high water mark.

The authority of COE to employ these broad review procedures was quickly challenged in the courts. The leading court decision regarding this issue, Zabel v. Tabb [16], was decided in 1970 by the U.S. Court of Appeals for the Fifth Circuit as the result of a suit first initiated in 1967. The case arose because of the denial by COE of a permit to fill wetlands due to anticipated harmful effects on fish and wildlife resources. The Fifth Circuit Court upheld the right of COE to refuse permits under RHA on ecological grounds. A number of other circuit courts subsequently have recognized the right of COE to make permit decisions on the basis of environmental factors [17].

Although the Zabel court noted other grounds for its decision (e.g., FWCA), it cited the National Environmental Policy Act of 1969 [18] (NEPA) as support for its holding. NEPA, signed into law on the first day of 1970, mandated consideration of environmental factors in all federal activities,

including the granting of permits. NEPA therefore provided an even broader basis than FWCA for consideration of the impacts of wetlands alteration in federal decision making.

Another response to concerns for environmental factors was the extension of COE regulatory jurisdiction under RHA shoreward of high water mark. Although general extension of this jurisdiction has not been attempted, control has been exercised shoreward of high water mark on a selective case-by-case basis in situations where activities in such areas has a direct relationship to the condition of navigable waters themselves. Jurisdiction of COE above high water mark has been upheld by the courts on the basis that language of RHA authorizes controls over such activities when they modify the channel of a navigable water [19].

In addition to measures to protect navigation, another federal activity initiated prior to 1972 that has served as a somewhat indirect federal wetlands control consisted of attempts to reduce flood damages through discouraging floodplain use. The National Flood Insurance Act of 1968 [20] (NFIA) established requirements for local land-use controls applicable to flood-prone areas as a condition for the availability of federally subsidized flood insurance. The use of financial disincentives applicable to the individual floodplain user was introduced by the Flood Disaster Protection Act of 1973 [21] (FDPA). Administration of the national flood insurance program was transferred to the Federal Emergency Management Agency (FEMA) with its creation in 1978 [22]. An institutional measure providing additional constraints on floodplain development consisted of the issuance of an executive order [23] in 1977 restricting federal involvement in activities affecting floodplain use.

Development of Controls Under Water Quality Legislation

Passage of FWPCA [24] in 1972 constituted a basic step in the evolution of wetlands management institutions. The primary provision of FWPCA applicable to wetlands is contained in section 404 which established authority for the Secretary of the Army to issue permits "...for the discharge of dredged or fill material into the navigable waters at specified disposal sites" [25], subject to certain authority vested in the Administrator of the Environmental Protection Agency (EPA). Since filling is a primary mode of wetlands destruction, this provision established a potentially significant regulatory mechanism.

A basic factor affecting the utility of this provision as a control over wetlands use was the scope of its geographical applicability. By its terms, the provision was to apply to "navigable waters." This term was defined in FWPCA simply to mean "...waters of the United States including the territorial seas..." [26]. Prior to legislative adoption of this definition, the judicially defined concept of navigability defining COE jurisdiction was based on physical capacity of waterways for commercial use. Since the shoreward extent of federal control over navigable waters traditionally had been established as high water mark, significant wetland areas had been excluded from federal jurisdiction.

Although the new definition of navigable waters created the potential for expansion of regulatory jurisdiction to include wetlands, it should be noted that this intent was not explicit in FWPCA as adopted in 1972. Use of the term "disposal sites" in the language of section 404 seemed to imply that its objective was limited to protection of water quality by control of dredge and fill activities involving contaminated materials. Of course the general goal of FWPCA to "restore the natural chemical, physical and biological integrity of the Nation's waters..." [27] could have been interpreted to encompass broader objectives such as wetlands protection; but neither the implementation provisions of the statute nor its legislative history [28] showed a clear intent that a comprehensive program of wetlands protection was being mandated.

COE did not originally perceive section 404 of FWPCA to require an expansion in the scope of its regulatory programs to include the Nation's wetlands. Although the agency was beginning to expand its jurisdiction to areas above high water mark on a selective basis, its initial response [29] in defining its permit jurisdiction under section 404 was to apply the traditional definition of navigable waters extending only to high water mark, thereby continuing to exclude significant wetlands areas from regulation. This position was in marked contrast to EPA's interpretation of jurisdiction under FWPCA and was strongly opposed by EPA [30] and environmental groups.

This opposition resulted in a lawsuit [31] against the Secretary of the Army by the Natural Resources Defense Council (NRDC). NRDC alleged that COE's definition of jurisdiction was inconsistent with the provisions of FWPCA. The U.S. District Court for the District of Columbia agreed and ordered the development of a broader definition of "navigable waters" compatible with provisions of FWPCA.

COE's response to the court order consisted of publication on May 6, 1975, of proposed regulations [32] incorporating alternative definitions of "navigable waters." These definitions ranged from a slightly expanded version of COE's traditional definition to a broad interpretation of jurisdiction. Publication of the alternative regulations was accompanied by a news release emphasizing the impacts of expansion of jurisdiction, including the possibility that farmers and ranchers would be required to obtain permits for many of their operations. This action by COE has been interpreted as an attempt to produce public reaction against broad regulatory jurisdiction and to create support for the more restricted position favored by COE [33].

Interim final regulations [34] were published on July 25, 1975, which included broad jurisdictional coverage encompassing wetlands. Since these regulations were applicable to substantial land areas not previously subject to federal control, implementation was based on a phased approach. Phase I of the program became effective with the July 25, 1975 publication of the regulations and encompassed waters traditionally included in COE regulatory jurisdiction and their adjacent wetlands. Phase II, to become effective on July 1, 1976, extended coverage to primary tributaries of traditionally navigable waters, certain lakes, and wetlands adjacent to these waters. Implementation of phase II of the regulations was suspended for 60 days by presidential action due to potential legislative modification of FWPCA. Phase III, with an effective date of July 1, 1977, further expanded control to include all waters encompassed by the term "navigable waters" [35].

As noted previously, congressional action to amend section 404 was initiated before the regulations were implemented, perhaps partly a result of adverse COE publicity regarding the scope of the regulatory program as mandated by the courts. Several amendments affecting section 404 were proposed, with restriction of COE jurisdiction a common element of most [36]. Several of the proposed amendments would have restricted COE permit authority under section 404 to waters traditionally considered navigable, with control over those waters removed from COE jurisdiction to be given to EPA or left to the states. However, there were substantial differences between the amendments as passed by the House and Senate; the inability of the two legislative bodies to reach a compromise prior to the end of the legislative session resulted in the adjournment of the 94th Congress without approved amendments to FWPCA.

Amendments were forthcoming in 1977 in the form of the Clean Water Act [37] (CWA). CWA did not restrict COE jurisdiction by redefining "navigable waters." The modified section 404 did include specific exemptions to the permit program [38], but the impact of this change was not major. CWA also established a procedure for delegation of authority to the states for administration of section 404 on non-tidal waters not traditionally considered navigable [39]. Since COE retained direct regulatory authority with respect to all tidal and other traditionally navigable waters and oversight responsibilities in other cases, this modification did not constitute a major change in program scope.

Adoption of CWA eliminates any doubt as to whether wetlands protection is a valid function of section 404. The legislative history [40] of the act indicates concern for the ecological damage caused by wetlands destruction and recognizes a need for corrective measures. Changes in section 404 brought about through CWA do not seek to modify judicial interpretations applying section 404 to wetlands nor restrict COE jurisdiction over the Nation's waters. Thus section 404 appears firmly established as the fundamental regulatory mechanism in the federal wetlands management program.

Development of the Coastal Zone Management Program

Another milestone in the evolution of the federal institutional framework for wetlands management consists of the enactment of the Coastal Zone Management Act of 1972 [41] (CZMA). The coastal zone management program was preceded by considerable federal activity in the general area of marine resources management. Prior to 1966, federal involvement consisted of several independent programs of relatively narrow focus located in a variety of agencies. Some degree of coordination was achieved through such institutional mechanisms as the Interagency Committee on Oceanography of the Federal Council for Science and Technology, which had been created by executive order [42] in 1959, and the Office of Science and Technology, established by Reorganization Plan No. 2 of 1962 [43]; but the program was largely decentralized in nature.

One of the first developments toward adoption of a more comprehensive program was the release of a 1959 report on oceanography by the Committee of Oceanography of the National Academy of Sciences and the National Research Council. Congressional studies were initiated immediately thereafter. This

effort led to congressional approval in 1962 of an act establishing a national oceanography program, but the bill received a presidential veto. Interest in comprehensive oceanography legislation continued, and several bills relating to marine resources were introduced in Congress over the next few years. These proposed measures differed widely with regard to the elements of the program to be established and/or the administrative structure for implementation [44].

The legislation ultimately resulting from this process was the Marine Resources and Engineering Development Act of 1966 [45] (MREDA). Shortly after its passage, MREDA was expanded by the National Sea Grant College and Program Act of 1966 [46]. This addition to the law established a program of federal assistance for education, training, and research.

With regard to the development of a coastal zone management program, one of the most significant provisions of MREDA was creation of the Commission on Marine Science, Engineering and Resources to advise and assist the President in developing a comprehensive program of marine science activities. The Commission's report [47] was released in 1969 and recognized the significance of the coastal zone. The report recommended enactment of coastal zone management legislation to establish national policy and authorize grants to state coastal zone management authorities. The report recommended that federal responsibilities be centralized in a proposed National Oceanic and Atmospheric Administration.

Meanwhile, another related legislative measure [48] had been enacted into law during 1968. One of the provisions of this legislation was authorization for the Department of Interior to conduct a National Estuary Study. The study [49] was completed by the January 30, 1970 deadline, but its quality was affected by the fact that funds for the study were not appropriated until six months prior to that date. One of the recommendations contained in the study was that federal assistance be provided to the states for management of estuarine resources.

The recommendations of the National Estuary Study and the report of the Commission on Marine Science, Engineering and Resources were reflected in legislative proposals for a federal-state coastal zone management program. Several such measures were proposed in the 1969-1972 period [50]. These proposals exhibited significant differences with regard to such basic factors as the definition of the geographical area to be included, the respective roles of the federal and state governments, and the vesting of administrative responsibility within the federal government.

A complication in the consideration of proposed legislation applicable to the coastal zone was the initiation of a federal effort to enact a comprehensive land-use policy. It has been reported that over 200 land-use policy measures were being considered by congressional committees by the spring of 1972 [51]. Since broad land-use measures would encompass special areas such as the coastal regions, introduction of such proposals was somewhat adverse to the prospects of the narrower legislation limited to the coastal zone. Nevertheless, a compromise coastal zone bill was approved by Congress and signed into law as CZMA, to be administered by the National Oceanic and Atmospheric Administration (NOAA) established in the Department of Commerce in 1970 [52].

CZMA did not create immediate regulatory measures concerning wetlands use. The primary purpose of the act was to provide funding to the states for development of comprehensive management programs for coastal zone resources. CZMA did establish an additional constraint on development in the coastal zone by means of a requirement that federal action or federally licensed activities be consistent with state management programs, but implementation of this constraint is contingent on the existence of an approved state program [53]. The state management program was established as a condition for state participation in the coastal energy impact program of financial assistance to the states created by additions to CZMA in 1976 [54]. Certain other legislation [55] dealing with marine development also has been constrained by specific requirements concerning state management programs under CZMA.

Existing Federal Controls Over Wetlands Use

As a result of this evolutionary process, the federal institutional framework now encompasses a variety of constraints on modification of privately owned wetlands. Two direct regulatory measures apply to wetlands use: the COE permit program under RHA and the COE permit program under CWA. In addition, several indirect measures constrain wetlands use, primarily by serving as limitations on COE permit decisions.

COE Permit Program Under RHA

RHA provides authority for a general regulatory program applicable to utilization of navigable waters. The nature of these controls is specified in the following statutory language [56]:

> The creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is prohibited; and it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines, or where no harbor lines have been established, except on plans recommended by the Chief of Engineers and authorized by the Secretary of the Army; and it shall not be lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor of refuge, or inclosure within the limits or any breakwater, or of the channel of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army prior to beginning the same.

COE jurisdiction under RHA is defined by the traditional definition of "navigable waters" as developed by the federal courts. This definition generally encompasses "...those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce" [57]. This

concept of navigability extends to artificial waters subject to tidal action and natural waters that can be made navigable by means of improvements [58]. RHA jurisdiction with regard to construction of piers and wharves does not include intrastate bodies of water considered navigable solely on the basis of historical use in interstate commerce [59]. This statutory restriction has been applied in a judicial determination that Virginia's Smith Mountain Lake is not subject to RHA jurisdiction [60].

The RHA permit program is a potential mechanism for federal control over use of privately owned wetlands. The legislation does not address environmental concerns, but consideration of environmental factors in its administration is mandated by NEPA. Although COE regulations provide that RHA jurisdiction in the case of rivers and lakes extends only to high water mark [61], COE authority to apply RHA controls shoreward of high water mark has been upheld in the courts [62]. Thus the potential of RHA as a control over wetlands use is clear. The existence of the COE permit program under CWA eliminates the need for reliance on RHA as a basic mechanism for control over wetlands use, but RHA continues to provide a secondary source of control.

COE Permit Program Under CWA

The jurisdiction of the dredge and fill permit program operated by COE under section 404 [63] of CWA is substantially broader than RHA jurisdiction. Like RHA, CWA also applies to "navigable waters," but the act defines this term simply as "...the waters of the United States, including the territorial seas" [64]. This definition contains no qualification with regard to actual physical suitability for navigation and is therefore considerably broader than the concept of navigable waters that defines the scope of regulations under RHA. Current COE regulations [65] for implementation of the section 404 permit program contain the following definition [66] of "waters of the United States":

(1) The territorial seas... ;

(2) Coastal and inland waters, lakes, rivers, and streams that are navigable waters of the United States, including adjacent wetlands;

(3) Tributaries to navigable waters of the United States, including adjacent wetlands (man-made non-tidal drainage and irrigation ditches excavated on dry land are not considered waters of the United States under this definition);

(4) Interstate waters and their tributaries, including adjacent wetlands; and

(5) All other waters of the United States not identified in paragraphs (1)-(4) above, such as isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not part of a tributary system to interstate waters or to navigable waters of the United States, the degradation or destruction of which could affect interstate commerce.

> The landward limit of jurisdiction in tidal waters, in the absence of adjacent wetlands, shall be the high tide line and the landward limit of jurisdiction on all other waters, in the absence of adjacent wetlands, shall be the ordinary high water mark.

This definition specifically includes adjacent wetlands, which are defined as follows [67]:

> The term 'wetlands' means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

The term "adjacent" is defined to mean "bordering, contiguous, or neighboring" and encompasses wetlands that may be separated from water by man-made barriers [68]. Thus the landward limit of COE jurisdiction where wetlands are present is determined by vegetative conditions and not by the location of the high water mark.

In addition to this generally broader applicability of section 404 permits relative to RHA permits, COE jurisdiction under section 404 is not subject to certain specific constraints that apply to RHA. For example, a statutory provision excluding certain intrastate waters from COE controls under RHA [67] does not apply to section 404 of CWA. A second example concerns activities subject to the jurisdiction of the Federal Energy Regualtory Commission under the Federal Power Act [70]. It has been held that FPA at least partially preempted COE permitting authority under RHA relative to hydroelectric projects; however, section 404 permits are required for such projects [71].

The scope of COE controls under CWA is also broad with respect to the activities encompassed by the term "discharge of dredged or fill material." The term "dredged material" is defined to mean "...material that is excavated or dredged from waters of the United States" [72]. The regulations exclude from this definition "...plowing, cultivating, seeding, and harvesting for the production of food, fiber, and forest products" [73]. CWA, in addition to providing an exclusion for these types of activities, excludes from regulation the maintenance of water management and transportation structures; construction or maintenance of farm stock ponds or irrigation ditches, or the maintenance of drainage ditches; construction of temporary sedimentation basins on construction sites, provided fill material is not placed in navigable waters; construction of farm or forest roads or temporary roads for moving mining equipment, provided certain practices are followed; and certain activities covered by an approved state program under provisions of CWA relating to area-wide waste treatment management [74]. The term "fill material" means "...any material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a waterbody" [75].

Although the section 404 permit program potentially applies to all of the Nation's waterways and encompasses essentially all types of dredge and fill activities, not all such projects require an individual permit. In addition

to the individual permit, "general" [76] and "nationwide" [77] permits are also established by the regulations. General permits are blanket authorizations granted by COE District Engineers for specific geographical areas that encompass certain discharges of dredged or fill materials that cause only minimal individual and cumulative environmental impact. Nationwide permits are blanket authorizations for certain discharges throughout the country. Although individual approval of projects covered by general and nationwide permits is unnecessary, special restrictions [78] apply to such activities.

Nationwide permits have been established for three categories of discharges of dredged or fill material: (1) discharges occurring before specified dates [79], (2) discharges into certain types of waters [80], and (3) specific types of discharges [81]. The grandfather provision applies to projects completed prior to specified dates in the phased implementation schedule [82] established for initiation of the permit program. The types of waters that are included in the nationwide permit are limited to small waterbodies such as upper reaches of non-tidal streams where the average flow is less than five cubic feet per second and certain natural lakes that are less than ten acres in surface area when adjacent wetlands are included. Specific types of discharges subject to nationwide permits include material placed as backfill or bedding for certain utility line crossings; material used in certain bank stabilization projects, provided that no material is placed in wetland areas or such that surface water flow into or out of any wetland area is impaired; certain minor road crossing fills involving a non-tidal waterbody; fills incidental to bridge construction across tidal waters; and the repair or replacement of currently authorized fill.

In addition to specific regulatory provisions that apply to projects encompassed by general and nationwide permits, individual permit requirements can be imposed on any such project under special conditions. COE District Engineers are vested by the regulations with authority to require individual permits upon the determination that such action is indicated because of individual or cumulative adverse impact on the affected waters [83].

Although the basic objective of CWA is protection of water quality, the act has become the primary vehicle for federal control over wetlands alteration. A policy of wetlands protection is established in the following provision [84] in COE regulations with regard to the evaluation of individual permit applications for dredge or fill projects:

> Wetlands are vital areas that constitute a productive and valuable public resource, the unnecessary alteration or destruction of which should be discouraged as contrary to the public interest.

Wetlands that are classified as performing functions important to the public interest include those wetlands that serve important natural biological functions such as food chain production, wetlands that have been set aside for study or as sanctuaries, wetlands whose destruction would detrimentally affect natural drainage patterns or other environmental characteristics, wetlands that protect other areas from wave or other damage, wetlands which serve as storage areas for flood or storm waters, wetlands that are prime recharge areas, and wetlands that purify water through natural filtration processes [85].

Accordingly, the regulations provide that COE will not grant permits for alteration of such wetlands unless an analysis indicates "...that the benefits of the proposed alteration outweigh the damage to the wetlands resource and the proposed alteration is necessary to realize those benefits" [86]. Guidelines for this analysis provide the following criteria [87] for evaluation of each permit application:

(i) the relative extent of the public and private need for the proposed structure or work;

(ii) the desirability of using appropriate alternative locations and methods to accomplish the objective of the proposed structure or work;

(iii) the extent and permanence of the beneficial and/or detrimental effects which the proposed structure or work may have on the public and private uses to which the area is suited; and

(iv) the probable impact of each proposal in relation to the cumulative effect created by other existing and anticipated structures or work in the general area.

CWA makes provision for conditional delegation of administrative authority under section 404 to the states [88]. Delegation requires approval of the state program by the EPA administrator. Approval can be withdrawn under specified conditions, and state permits can be vetoed by EPA in certain situations. Virginia has not requested that administrative authority be transferred to the state. Section 404 permitting authority can be delegated only in the case of non-tidal waters not susceptible to use in interstate commerce; therefore COE jurisdiction over coastal wetlands will not be appreciably affected by the delegation provision.

Constraints on COE Permit Decisions

Exercise of COE regulatory responsibilities is constrained by a number of provisions that mandate consideration of special factors and/or review and input by other governmental entities. One of the most direct constraints consists of EPA authority under section 404 of CWA which limits COE authorization of dredge and fill activities. Other constraints involving federal, state, and/or local actions include consideration of environmental factors, consideration of fish and wildlife values, consideration of historic values, protection of wild and scenic rivers, consistency with state regulatory action, consistency with state coastal zone management programs, compatibility with state and local planning, and compliance with state water quality requirements.

EPA Authority Under Section 404 of CWA

COE issuance of section 404 permits under CWA is subject to the exercise of two functions assigned by the act to EPA: (1) the development of guidelines for approval of sites for discharge of dredged or fill materials and (2) the authority to prohibit any discharge under specified conditions [89].

The EPA guidelines [90] for approval of sites apply to the discharge of dredged or fill materials by the general public and by federal agencies, including operations of COE itself [91]. The guidelines contain detailed provisions for consideration of physical and chemical-biological effects in the evaluation of a proposed discharge of dredged or fill material. With regard to the evaluation of the physical effects of filling wetlands, the EPA guidelines make the following statement [92]:

> From a national perspective, the degradation or destruction of aquatic resources by filling operations in wetlands is considered the most severe environmental impact covered by these guidelines. Evaluation procedures for determining the environmental effects of fill operations in wetlands are relatively straightforward. The guiding principle should be that destruction of highly productive wetlands may represent an irreversible loss of a valuable aquatic resource.

More specific criteria for determining when dredged or fill material may be discharged into wetlands are given by the following provision [93]:

> (i) Discharge of dredged material in wetlands may be permitted only when it can be demonstrated that the site selected is the least environmentally damaging alternative; provided, however, that the wetlands disposal site may be permitted if the applicant is able to demonstrate that other alternatives are not practicable and that the wetlands disposal will not have an unacceptable adverse impact on the aquatic resources. Where the discharge is part of an approved Federal program which will protect or enhance the value of the wetlands to the ecosystem, the site may be permitted.
>
> (ii) Discharge of fill material in wetlands shall not be permitted unless the applicant clearly demonstrates the following:
>
> (a) the activity associated with the fill must have direct access or proximity to, or be located in, the water resources in order to fulfill its basic purpose, or that other site or construction alternatives are not practicable; and
>
> (b) that the proposed fill and the activity associated with it will not cause a permanent unacceptable disruption to the beneficial water quality uses of the affected aquatic ecosystem, or that the discharge is part of an approved Federal program which will protect or enhance the value of the wetlands to the ecosystem.

Although COE must apply the EPA guidelines to permit applications under section 404 and to its own operations involving the discharge of dredged or fill material, the legislation provides for other considerations to enter the decision where application of the EPA guidelines alone would prohibit approval of a given site for discharge operations. In this situation, COE must also evaluate the economic impact on navigation and anchorage which would occur if the proposed site is not utilized [94].

In addition to the control which EPA asserts through its guidelines, the agency also possesses the final authority to prohibit any discharge of dredged or fill material under certain conditions as specified in the following provision [95]:

> The Administrator is authorized to prohibit the specification (including the withdrawal of specification) of any defined area as a disposal site, and he is authorized to deny or restrict the use of any defined area for specification (including the withdrawal of specification) as a disposal site, whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. Before making such determination, the Administrator shall consult with the Secretary of the Army. The Administrator shall set forth in writing and make public his findings and his reasons for making any determination under this subsection.

Consideration of Environmental Impacts

Proposals for wetlands alterations are potentially subject to environmental review procedures established by the National Environmental Policy Act of 1969 [96] (NEPA). NEPA imposes no direct impediments to project approval in the form of mandatory consent of other agencies, but it establishes a national policy of environmental protection and mandates certain procedural requirements concerning assessment of environmental consequences and alternative plans of development. Under certain conditions, NEPA requires the preparation of an environmental impact statement (EIS) prior to final action on a permit request [97].

COE regulations regarding the EIS process [98] provide that the determination as to whether an EIS is required be made by the District Engineer on the basis of a preliminary assessment of environmental impact. The basic criterion is whether significant impact is expected. If the District or Division Engineer is in doubt, COE regulations provide that guidance be requested from the Washington headquarters office [99]. The regulations require that a negative determination be brought to the attention of the public by publication in a schedule maintained by each COE District Office indicating involvement in EIS preparation [100]. Such determination is subject to change as dictated by public response or other factors.

Consideration of Fish and Wildlife Values

Two federal statutes that mandate consideration of fish and wildlife values are the Fish and Wildlife Coordination Act [101] (FWCA) and the Endangered Species Act of 1973 [102] (ESA).

FWCA declares the policy that wildlife conservation should receive equal consideration with other features of water resource development [103]. FWCA provides for consultation with federal and state fish and wildlife agencies whenever any federal agency proposes a water development project or receives an application for a federal license for such a project [104].

In order to fulfill this obligation, COE regulations provide for consultation with the United States Fish and Wildlife Service, the National Marine Fisheries Service, and the state agency responsible for fish and wildlife [105]. Procedures for coordination with the Interior Department are contained in a memorandum of understanding [106] established between the Secretary of the Army and the Secretary of Interior in 1967, prior to enactment of FWPCA. This agreement makes provision for COE District Engineers to consider the advice of the Regional Directors of the Interior Department on fish and wildlife and recreation problems associated with proposed projects. In any case where the District Directors advise that a proposed project will impair natural resources, the agreement further provides that the COE District Engineer must encourage the applicant to take steps to resolve the objections to the project. Unless such objections are resolved, the District Engineer cannot approve the permit. In this event, the agreement requires that the case be forwarded to the Chief of Engineers and the Washington headquarters of the Department of Interior agency involved. Failure to resolve the issues at this level results in referral to the Secretary of the Army for decision in consultation with the Secretary of Interior.

The Endangered Species Act [107] (ESA) provides for the conservation of endangered and threatened species and the ecosystems upon which they depend. ESA provides that each federal agency shall carry out programs for the conservation of such species and places the following constraints on agency action [108]:

> Each Federal agency shall, in consultation with and with the assistance of the Secretary [of Interior, Commerce, or Agriculture], insure that any action authorized, funded, or carried out by such agency...does not jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined ...to be critical, unless such agency has been granted an exemption by the [Endangered Species] Committee... .

The Endangered Species Committee was established in 1978 and consists of the Secretaries of Agriculture, the Army, and Interior; the Chairman of the Council of Economic Advisors; the Administrators of EPA and NOAA; and one individual from each affected state. The Committee, subsequent to certain determinations by a review board provided for in ESA, is authorized to grant exemptions to agencies from the above-quoted constraint under conditions specified in ESA [109].

Consideration of Historic Values

The National Historic Preservation Act of 1966 [110] (NHPA) requires federal agencies to consider the effects of projects proposed for construction, assistance, or licensing on property listed in the National Register or

eligible for listing because of its historical significance. NHPA provides that the agency must give the Advisory Council on Historic Preservation an opportunity to comment with regard to the project [111].

Other legislation provides for notice to the Secretary of Interior whenever federal agencies plan to undertake construction of certain dams or other projects that may result in the loss of historical date [112]. Provision is rade for the Secretary to coordinate investigations and recovery operations where such data appear significant [113].

Protection of Wild and Scenic Rivers

The Wild and Scenic Rivers Act [114] (WSRA) establishes federal policy that certain streams should be preserved in their natural conditions and establishes procedures for designation and protection. WSRA provides that no federal agency may assist or license any water resource project that would have a direct adverse effect on the values for which a wild and scenic river was designated. This restriction also applies temporarily to streams that are designated as potential additions to the system. Special notification procedures apply where an agency desires to recommend authorization or to request appropriations for a federal water project that would have an adverse effect on a designated wild and scenic river [115].

Consistency with State Regulatory Action

COE general regulatory policies [116] address the effect to be given state views regarding applications for permits for activities affecting navigable waters. It is indicated that permits will generally be issued in cases of a favorable state view, provided federal concerns as reflected in relevant statutes and regulations have been "followed and considered" [117]. Denial of permits for activities endorsed by a state would normally occur only in the case of "...over-riding national factors of the public interest that may be revealed during the processing of the permit application..." [118].

The COE permit will not be issued where the state objects to a project. The regulatory policies provide that "[p]ermits will not be issued where certification or authorization of the proposed work is required by federal, state, and/or local law and that certification or authorization has been denied" [119]. In addition, COE also conditions its permit on a positive expression of overall state consent [120]. In Virginia, the state position is formulated by the Council on the Environment after consideration of the views of all interested state agencies and other parties. A negative determination regarding the overall state view would preclude issuance of the COE permit although local and individual state agency permits had been obtained for a particular activity.

Consistency with State Coastal Zone Management Programs

Once a coastal zone management program developed by a state under CZMA [121] is approved by the Secretary of Commerce, CZMA provides that each federal agency conducting or supporting activities directly affecting the coastal zone shall assure the consistency of such activities with the approved state management program to the maximum extent practicable. Applicants for federal licenses for activities affecting land or water use in the coastal zone must certify that the proposed activity complies with the state management program. Such licenses cannot be granted over the objection of the state unless the Secretary of Commerce finds that the activity is consistent with CZMA or is otherwise necessary in the interest of national security [122]. Since Virginia currently has no approved program [123], this constraint is not operative at present.

In addition to the general requirement in CZMA for federal consistency with the state management program, certain other federal legislation potentially affecting wetlands contains specific constraints regarding state coastal zone management programs. The Outer Continental Shelf Lands Act [124] recognizes the need for consideration of the onshore impacts of offshore natural resource development, and permitting of any activity under the act that would affect land or water use in the coastal zone is conditioned on consistency with approved coastal zone management programs in the affected area. The Deepwater Port Act of 1974 [125] provides that the required federal permit for such facilities will not be issued unless the state to be connected to the port by pipeline has developed or is making reasonable progress toward an approved management program in the area to be affected by port-related development.

A state coastal zone management program is also a necessary condition for participation in the coastal energy impact program created in CZMA [126] to provide federal financial assistance to help the coastal states and their localities meet needs resulting from specified energy-development activities. Thus a state's coastal zone management program is a significant element of the institutional framework for wetlands management.

Compatibility with State and Local Planning

In the event that a wetlands alteration project involves federal funding, another external review procedure that applies is the "A-95" project notification and review process [127] required by the Office of Management and Budget (OMB). This review is designed to insure the compatibility of federal actions with state and local planning. The OMB requirements provide that all federal agencies solicit the views of appropriate federal, state, and local agencies and that such views be considered in the project evaluation process. The negative view of one or more agencies does not preclude project funding, but the expression of substantial opposition through the review process could be expected to decrease the probability of approval.

For purposes of coordinating the review process, the OMB requirements provide for establishment of regional and state clearinghouses, which in Virginia consist respectively of the planning district commissions and the Virginia Department of Intergovernmental Affairs [128]. With regard to projects subject to the "A-95" process (partially enumerated below), the potential applicant for federal funds must notify the state and appropriate regional clearinghouses at least 30 days before a formal application is submitted. The clearinghouses then coordinate a review among interested agencies with regard to possible conflicts between the application and state and regional policies and plans. If conflicts exist which cannot be resolved through consultation with the applicant, the clearinghouses prepare a formal comment which must be submitted with the application when forwarded to the funding agency [129].

The "A-95" project notification and review system applies to a wide range of federal grant programs. Covered programs related to water resources include irrigation, drainage, and other soil and water conservation loans; water and waste disposal systems for rural communities; watershed protection and flood prevention projects and loans; beach erosion control projects; flood control projects; navigation projects; snagging and clearing for flood control; outdoor recreation planning, acquisition, and development; irrigation distribution system loans; small reclamation projects; water resources planning; and EPA programs for water pollution control [130].

State Water Quality Certification

In addition to the responsibilities granted to EPA by CWA, the legislation also conditions COE permits on state approval based on water quality considerations. Section 401 [131] of CWA provides that no federal license or permit for an activity with a potential discharge to navigable waters shall be issued unless the state water quality management agency certifies that any such discharge will comply with applicable effluent limitations and other specified provisions of CWA. Thus the State Water Control Board (SWCB) is in a position to veto wetlands alteration projects where the threat of water quality degradation is posed.

In addition to providing a mechanism for SWCB control of impounding structures and certain other activities, the section 401 certification process also provides a mechanism for other states to influence the federal permitting process where interstate water quality effects are possible. CWA makes provision for an affected state to have its views heard, and the federal authorization in question must be conditioned such that water quality requirements are satisfied. If compliance cannot be insured, the authorization cannot be granted [132]. It is therefore conceivable that the objections of another state could result in withholding of federal approval of a water resource project located in Virginia where the affected waterway flows into that state.

Consideration of Alternatives to Floodplain Use

Federal agencies are required to take actions to reduce flood damages by discouraging inappropriate use of floodplains. An executive order issued in

1977 requires agencies proposing to "...conduct, support, or allow an action to be located in a floodplain..." to consider alternatives and, where no practicable alternative exists, to minimize resulting harm [133]. This requirement therefore serves as a limitation on COE authorization of activities in wetlands involving potential flood damages.

A related measure restricting floodplain use consists of provisions in flood insurance legislation requiring local land-use controls applicable to floodplains as a condition for insurance availability [134] and provisions establishing financial disincentives for floodplain development [135]. These requirements associated with the flood insurance program are not direct constraints on the COE permit process, but they do serve as a general constraint on wetlands development.

Evolution of Virginia Controls

Early Developments

With respect to the evolution of the state framework for use of private wetlands, one of the first significant developments consisted of the transfer of such areas to private ownership. This transfer was initiated during the colonial period and continued under state government. Although certain types of wetlands are conveyed to private ownership when property boundaries are established at high water mark, more extensive private ownership results where low water mark serves as the property boundary. Thus a basic issue is the ownership of the land between low and high water marks under Virginia law.

While it appears that private property in Virginia originally extended only to high water mark, private ownership subsequently was extended to low water mark. In a discussion of this issue in Miller v. Commonwealth [136], the state supreme court concluded that the limit of land granted during the colonial period and for a number of years after independence generally was high water mark in the absence of express inclusion of land below high water mark. The court noted the existence of specific grants that included land between high and low water marks because of express inclusion and other special conditions, but it concluded that such grants covered only a very small percentage of such lands. However, the court found that private ownership of such lands had been established by General Assembly action in 1819. This act extended property boundaries to low water mark, provided that express grants of the affected land had not been made to other parties and that public rights of fishing, fowling, and hunting were to continue where shores were subject to common usage. This extension of boundaries has been seen as a permanent grant that cannot be returned to public ownership without use of proper procedures and payment of compensation [137].

The state began to exercise control over the state-owned submerged lands at an early date. The first management concern was the use of such lands for growing shellfish. For example, an 1872 statute [138] contained provisions for authorizing use of state-owned beds for planting oysters. Current legislation applicable to construction or other development activity was enacted in

1960 [139]. The first legislation applicable to state-owned beds to reflect concern for wetlands was a 1972 amendment to the 1960 legislation providing criteria for evaluating permit requests, one of which was the "...effect upon the wetlands of the Commonwealth..." [140].

State restrictions on the use of wetlands conveyed to private ownership were slow to develop. One of the first actions of potential significance in this regard consisted of enactment of enabling legislation for local land-use planning and control [141]. However, this legislation until 1976 was permissive rather than mandatory. An amendment to the enabling legislation in 1975 and subsequent changes require the development of local comprehensive plans by July 1, 1980 [142], but the contents of such plans and exercise of general land-use controls remain under local control. Thus the extent to which wetlands use is regulated through general land-use planning and control remains discretionary with the state's political subdivisions.

Development of the Virginia Wetlands Act

The effort to develop an institutional mechanism for the direct regulation of the use of privately owned tidal wetlands had its origins in a study of marine resources mandated by the 1966 General Assembly [143]. The legislature, in response to conflict between recreational and commercial uses of Virginia's tidal waters, had recognized a need for greater knowledge of marine resources and established the Marine Resources Study Commission to conduct an investigation. Noting the importance of both commercial and recreational uses of tidal waters to the economy of the state, the legislature in its resolution authorizing the study expressed the desire to resolve the conflict to the mutual benefit of each group such that "...all the marine resources of Virginia will be utilized to the maximum degree possible for the benefit of all..." [144]. This attempt to balance opposing interests was reflected in the makeup of the study commission, which was to include, in addition to members from the General Assembly and administrative agencies with related responsibilities, three representatives of commercial fisheries interests and three representatives of recreational interests.

The specific mandate of the commission was as follows [145]:

> The Commission shall make a comprehensive study of the marine resources of Virginia; evaluate the present methods of utilization thereof; determine whether proper conservation practices are being fostered under existing laws; make recommendations toward resolving conflicts between commercial and recreational uses of the marine resources of Virginia; and make recommendations for the long range preservation, use and development of the marine resources of Virginia.

Although this charge to the study group did not specifically address wetlands, the 1967 report of the commission did recognize the possible importance of wetlands to the continued health of the commercial and sport fisheries as indicated in the following language [146]:

> We recognize and appreciate the value of marshes and wetlands to the marine resources of Virginia. The day is rapidly approaching when Virginia must be in a position to protect its marshes and wetlands from mutilation and destruction. Each year acres of marsh and wetlands, valuable to the State's marine economy, are drained, dredged and filled in or built upon for commercial or other purposes. Many of these wetlands are absolutely essential to the life cycle of most of the marine animal species found in Virginia. Their virtual destruction would convert most of our marine waters to barren wastelands as far as fish, oysters, crabs and waterfowl are concerned.

The commission viewed additional information concerning wetlands and their importance as an essential need as indicated in the following statement [147]:

> The first step in a sensible and effective program of wetlands preservation is the accurate identification of those marsh and wetland areas within the State which must be preserved to maintain the productiveness of the various waterways of the State. These areas should be accurately identified and their relative importance assessed. Such information is not now available. Before the State can give intelligent thought to methods for preserving and protecting these essential marshes and wetlands, such a study and survey of these areas must be made.
>
> We, therefore, recommend that the Virginia Institute of Marine Science be directed to make a study of all marshes and wetlands in Virginia and assess their relative importance to the marine resources of the State. These studies should be coordinated closely with the Commission of Game and Inland Fisheries and the Commission of Fisheries.

The 1968 General Assembly accepted this recommendation and directed the Virginia Institute of Marine Science (VIMS) to undertake a wetlands study. The following language of the study directive indicates that the need for an institutional mechanism to preserve wetlands had already been perceived [148]:

> Whereas, many of the marsh lands and wetlands in this State are absolutely essential to the life cycle of the marine animal species, salt marshes serve as nursery areas for many species of fishes, crabs and other marine animals, and marshes support shore and wetland birds and animals; and
>
> Whereas, each year acres of marsh lands and wetlands are drained, dredged and filled; and
>
> Whereas, the State must eventually undertake the preservation and protection of essential marsh lands and wetlands, and it is necessary for such purpose that those marsh lands and wetlands which are essential be accurately identified; now, therefore, be it

> Resolved by the House of Delegates, the Senate concurring, That the Virginia Institute of Marine Science is directed to make a study and report on all marsh lands and wetlands in the State for the purpose of assessing their relative importance, respectively, to the marine resources of the State... .

In the resulting report [149], VIMS emphasized the productivity of wetlands and the fundamental role they play in ecological processes, including the life cycles of economically important marine organisms. The report estimated that as much as 95 percent of the annual harvest of commercial and sport fish in Virginia is related to wetlands [150].

This report, along with a widespread growth in awareness as to the significance of wetlands, gave rise to unsuccessful attempts to have wetlands legislation enacted in the 1970 session of the legislature. The rejection of the proposed laws has been attributed to defects in the bills arising from hurried drafting and the lack of preparation and coordination among both legislators and state agencies [151]. Another possible reason for rejection consisted of the fact that the proposed control measures provided for direct state regulation, effectively by-passing the local level of government.

The continuing interest in wetlands management led to establishment in 1971 of a special wetlands study commission [152], a step traditionally preceding passage of significant new legislation in Virginia. This commission was directed to include in its study an inventory of wetlands, dangers threatening them, and steps that state and local governments can take "...to preserve the potential of this great resource for this and future generations" [153]. The importance with which the legislature viewed the need for protection is evident in the following language from the resolution creating the study commission [154]:

> [I]f the wetland resources of this state are lost, this generation will have allowed to slip from its grasp a priceless treasure and future generations will be forever deprived of this important part of our environment... .

In order to provide an opportunity for public input, the wetlands study commission held public hearings in Norfolk, Alexandria, Yorktown, Richmond, and on the Eastern Shore. The commission in its report [155] indicated that many of the suggestions received were incorporated into its recommendations. Of course, conflicting opinions were presented on certain issues, e.g., the question of whether regulatory authority should be based at the state or local level.

The commission's report recommended a control program placing primary regulatory responsibility at the local level, with authority for guidelines and review of local decisions vested in the Virginia Marine Resources Commission (MRC). It has been suggested that recommendation of an approach emphasizing local control was at least partially the result of the failure of a 1970 legislative proposal involving sole control by the state [156]. The study commission's recommended legislation was introduced in the 1972 session of the General Assembly. After some modification, the proposed bill was enacted into law as the Virginia Wetlands Act [157] (VWA).

Adoption of VWA resulted in subsequent restriction of another legislative provision adopted in 1972. This other provision was a previously noted requirement for consideration of wetlands in the administration of controls over state-owned submerged lands [158]. In order to eliminate duplicate provisions for wetlands consideration, the other legislation was modified in 1973 to restrict its application to situations not subject to the jurisdiction of VWA [159].

Several amendments [160] to VWA were approved by the 1980 General Assembly but were vetoed by the Governor on the basis that the changes would have been too restrictive with regard to development. The most significant change would have extended coverage of VWA to non-vegetated wetlands [161].

Development of Coastal Resources Management in Virginia

In the evolution of Virginia controls over wetlands use, the year 1972 was not only significant as the date of passage of VWA but also due to enactment of the federal CZMA. Virginia's response to the incentives contained in CZMA has consisted of considerable action by the executive and legislative branches of government. Attempts to develop a state program began with the receipt of an initial planning grant from the Office of Coastal Zone Management in 1974. The original grant was made to the Division of State Planning and Community Affairs (DSPCA). Responsibility for program development pursuant to the grant was transferred to the Office of the Secretary of Commerce and Resources in 1976 when DSPCA was abolished as part of a governmental reorganization [162].

Prior to this transfer, the General Assembly created a basis for legislative involvement with the establishment of the Virginia Coastal Study Commission [163] (VCSC) in 1975. The original responsibility of VCSC was restricted to consideration of the effects of possible oil exploration and development of the outer continental shelf adjacent to Virginia, but another resolution [164] passed in 1976 expanded the scope of the study to include the coastal zone management program.

The VCSC report [165] published as a document of the 1977 General Assembly reviewed program development activity to that point and recommended that the legislature work closely with the executive branch of government in the development of the management program. VCSC recommended continuance of the commission as a mechanism for such involvement. The 1977 General Assembly continued VCSC and established October 1, 1977 as a final reporting date [166].

While these legislative developments were occurring, planning by the executive branch was continuing pursuant to grants under CZMA. Although interaction between these two groups has been indicated [167], VCSC was not in agreement with the proposals advanced by the Office of the Secretary of Commerce and Resources during the third year of planning. The nature and result of this conflict are indicated in the following statement from VCSC's report to the 1978 session of the General Assembly [168]:

> In reference to the substantive element of the documents prepared by the OCR, the drafters of the most current Proposals for CRM in Virginia have done valuable work in the compilation of vast amounts of material from a number of sources and in organizing and defining the issues and considerations pertinent to their charges. However, the Virginia Coastal Study Commission was not a party to developing the policy recommendations in that document and has in fact concluded that the recommendations, for example, of location of State responsibility and authority and the land use management scheme in the draft were not appropriate answers to the acknowledged problems. It was decided that, apart from failure to meet requirements of the CZMA, the policy judgments made in the draft report were not acceptable and did not provide a workable solution given the current legislative framework in existence in Virginia today. Therefore, the Commission has addressed the problems identified in the preliminary drafts in terms of the legislative package introduced in the 1978 General Assembly pursuant to Commission recommendations contained herein.

One of the basic elements of the legislative package referred to in the above quote consisted of the proposed Coastal Resources Management Act [169]. This act was intended to protect certain specified "fragile shoreline areas" by initiation of local control measures subject to state review. However, VCSC's report indicated that the proposed legislation had been approved by the commission "...only in general principle and not in terms of specific detail in some instances" [170]. The lack of agreement among commission members with regard to certain issues was indicated in the dissenting opinions included in the commission's report.

Although the VCSC report was submitted to the 1978 General Assembly, it was anticipated that the proposed legislation would be carried over to the 1979 session. To facilitate the study and consideration of the proposals, VCSC recommended creation of a joint subcommittee consisting of the Senate Committee on Agriculture, Conservation and Natural Resources; the House Committee on Conservation and Natural Resources; the Senate Committee on Local Government; and the House Committee on Counties, Cities and Towns [171]. This recommendation was accepted and the proposed legislation was carried over to the 1979 session [172]. However, the legislative proposals proved to be controversial in the 1979 Assembly, and none of the measures was enacted.

The failure of the proposed coastal legislation was a major factor in the decision by the Federal Office of Coastal Zone Management to terminate funding for the Virginia planning program under CZMA on April 30, 1979. Another factor mentioned in the termination announcement [173] was dissatisfaction with the Virginia program proposal submitted by the Office of the Secretary of Commerce and Resources. A third factor indicated was concern over the level of support for the program by the Governor of Virginia. This termination has precluded the state from receiving federal grants for program implementation and pursuant to the coastal energy impact program. In the event that an approved program should be developed at a future date, the state could be reinstated in the federal funding program.

Planning for the management of coastal resources has continued subsequent to the termination of funding under CZMA. Responsibility for continuing development has been transferred to the Virginia Council on the Environment (VCOE). The primary emphasis has been on coordination of management activities under existed legal authority. The initial coordination plan [174] identifies saline and fresh water wetlands as one focus of coastal resources management. A stated objective of this plan is "[t]o protect ecologically significant tidal marshes from despoilation or destruction" [175].

The plan provides for VCOE to perform specific coordination functions related to coastal resources management. The primary coordination function consists of an annual program review process through which coastal resources management can be assessed. This review process is intended to provide an evaluation of relevant agency activities in terms of coastal resources management objectives. An evaluation report based on the review is to be transmitted to the Secretary of Commerce and Resources and will serve as the basis for legislative or other recommendations as well as updating the coastal management plan [176].

Other recent institutional developments involve interstate coordination of coastal resources management. The 1978 General Assembly adopted a resolution [177] approving a joint Legislative Advisory Committee on the Chesapeake Bay with the State of Maryland. In 1979, the governors of Virginia and Maryland signed an agreement [178] for coordination of "research, planning, advisory, permitting and management programs." This agreement provided for creation of a Bi-State Working Committee of agency representatives from the two states.

The latest legislative development relative to the coastal management program consists of enactment in 1980 of the Coastal Primary Sand Dune Protection Act [179] (CPSDPA). CPSDPA seeks to protect certain dunes contiguous to high water mark by authorizing specified counties to adopt a special zoning ordinance with provisions similar to those contained in the wetlands zoning ordinance established by VWA.

Existing Virginia Controls

Virginia Wetlands Act

The Virginia Wetlands Act as currently in effect is based on the premise that wetlands constitute "...an irreplaceable natural resource which in its natural state, is essential to the ecological systems of the tidal rivers, bays and estuaries of the Commonwealth" [180]. Legislative recognition is given to a number of adverse consequences associated with continuing wetlands destruction, including water pollution; a decrease in flora and fauna as sources of food, employment, and recreation; an increase in costs and hazards associated with floods and tidal storms; and an acceleration in erosion and loss of productive lands. Thus the VWA declares that the policy of the state is "...to preserve the wetlands and to prevent their despoilation and destruction and to accommodate necessary economic development in a manner consistent with wetlands preservation" [181].

In order to implement this policy, VWA establishes a regulatory program that subjects certain types of wetlands modifications to governmental control by requiring that an authorizing permit be obtained prior to alteration of the natural condition. The scope of this regulatory program is defined in terms of (1) physical wetlands characteristics and (2) type of modifying activity.

With regard to physical characteristics of the wetlands encompassed by the act, VWA contains general criteria that apply to all wetlands except specially designated areas, including Back Bay, North Landing River, and the tributaries of these two bodies of water. In the case of these special areas, wetlands subject to the act include all marshes (1) that are subject to regular or occasional flooding by tides, including wind tides but excluding hurricane or tropical storm tides and (2) that contain certain specified vegetation on or after July 1, 1973 [181]. In all other areas, wetlands are encompassed by VWA if they (1) are contiguous to mean low water and lie between this line and an upper elevation equal to 1.5 times the mean tide range at the site in question and (2) contain specified vegetation on July 1, 1972, or thereafter [182].

VWA applies to all alterations of wetlands that are not specifically exempted by the act. The following activities are exempted [183]:

(a) The construction and maintenance of noncommercial catwalks, piers, boathouses, boat shelters, fences, duckblinds, wildlife management shelters, footbridges, observation decks and shelters and other similar structures; provided that such structures are so constructed on pilings as to permit the reasonably unobstructed flow of the tide and preserve the natural contour of the marsh;

(b) The cultivation and harvesting of shellfish and worms for bait;

(c) Noncommercial outdoor recreational activities including hiking, boating, trapping, hunting, fishing, shellfishing, horseback riding, swimming, skeet and trap shooting, and shooting preserves; provided that no structure shall be constructed except as permitted in subsection (a) of this section;

(d) The cultivation and harvesting of agricultural or horticultural products; grazing and haying;

(e) Conservation, repletion and research activities of the Virginia Marine Resources Commission, the Virginia Institute of Marine Science, Commission of Game and Inland Fisheries and other related conservation agencies;

(f) The construction or maintenance of aids to navigation which are authorized by governmental authority;

(g) Emergency decrees of any duly appointed health officer of a governmental subdivision acting to protect the public health;

(h) The normal maintenance, repair or addition to presently existing roads, highways, railroad beds, or the facilities of any person, firm, corporation, utility, federal, state, county, city or town abutting on or crossing wetlands; provided that no waterway is altered and no additional wetlands are covered;

(i) Governmental activity on wetlands owned or leased by the Commonwealth of Virginia, or a political subdivision thereof;

(j) The normal maintenance of man-made drainage ditches, provided that no additional wetlands are covered; and provided further, that this paragraph shall not be deemed to authorize construction of any drainage ditch.

In addition to these categorical exemptions, VWA also contains a grandfather provision that excludes from its regulatory provisions certain projects that were initiated, or in connection with which certain action had been taken, prior to the effective dates of the act [184].

In furtherance of the premise that wetlands are essential to the ecological systems of the state's tidal waters, VWA establishes the following standards for the use and development of wetlands [185]:

(1) Wetlands of primary ecological significance shall not be altered so that the ecological systems in the wetlands are unreasonably disturbed;

(2) Development in Tidewater Virginia, to the maximum extent possible, shall be concentrated in wetlands of lesser ecological significance, in wetlands which have been irreversibly disturbed before July 1, 1972, and in areas of Tidewater Virginia apart from the wetlands.

The regulatory program established by VWA to insure application of these standards and implementation of its other provisions involves both the state and local levels of government. The act contains provisions for administration of the mandated permit program by local government, with the state to provide general guidelines for administration and review of local permit decisions. However, provision is made for direct state administration where local programs are not developed.

The Local Role

VWA provides authority for the governing body of any county, city or town to adopt a wetlands zoning ordinance as presented in the act. Where this option is exercised, the locality must create a wetlands board consisting of five residents of the locality (the City of Poquoson is authorized to appoint a seven member board) [186]. The following political subdivisions have established wetlands boards [187]:

Accomack County	King William County	Richmond County
Charles City County	Lancaster County	Stafford County
Chesapeake	Mathews County	Suffolk
Essex County	Middlesex County	Virginia Beach
Gloucester County	New Kent County	West Point
Hampton	Newport News	Westmoreland County
Hopewell	Northampton County	Williamsburg
Isle of Wight County	Northumberland County	York County
James City County	Poquoson	
King George County	Prince William County	

Once a local wetlands board is established, it is unlawful for any person to conduct a nonexempted wetlands modification without a permit from the local board. When a permit application is filed with a local board, copies must be sent to MRC and VIMS. Within 60 days after receipt of an application, the local board must hold a public hearing at which any person may appear and be heard. A record of the proceedings, including a summary of the statements of all witnesses, is required. The decision to grant or deny the permit must be made within 30 days of the hearing, with notice of the decision to be given the applicant and the Commissioner of Marine Resources within 48 hours [188].

The decision of a local board on each application is to be based on testimony regarding the application and the board's assessment of the impact of the development with regard to the policy and standards of VWA and guidelines promulgated by MRC. After considering these factors, the board is required to grant the permit if it finds that the purposes and intent of VWA will not be violated and "...that the anticipated public and private benefit of the proposed activity exceeds the anticipated public and private detriment..." [189]. Otherwise, the permit is denied. Permits may be granted subject to any reasonable condition or modification. The local board after hearing may suspend a permit if the applicant does not comply with terms and conditions set forth in the application [190].

Local wetlands boards also serve as the regulatory body regarding alteration of coastal primary sand dunes where localities adopt local ordinances under CPSDPA [191]. This additional function of local boards is similar to those under VWA.

The State Role

State government performs three primary functions under VWA: inventory and evaluation of wetlands, review of the decisions of local wetlands boards, and administration of the wetlands permit program under special conditions.

These responsibilities are carried out primarily through interaction between MRC and VIMS. MRC is the state's management agency in the area of marine resources and consists of six members and a chairman, all appointed by the governor. The chairman serves as Commissioner of Marine Resources, the chief administrative officer of the agency. The traditional jurisdiction of MRC has been management of commercial fisheries and use of the beds of state-owned tidal waters. MRC authority in these areas has included leasing of

tidal beds; projects to improve fisheries, especially shellfish; and regulation of commercial fisheries operations [192]. Authority relating to wetlands was conferred in 1972 when wetlands legislation was first enacted. VIMS is the state's principal research organization in the area of marine science. Advisory services are provided to MRC, other state agencies, and the governor and state legislature. VIMS is not an independent state agency but is part of the College of William and Mary [193].

The inventory and evaluation of wetlands is the responsibility of MRC with the advice and assistance of VIMS. VWA provides for a continuing wetlands inventory and the development of guidelines which evaluate wetlands by type and set forth the consequences of use [194]. A primary purpose of this activity is to assist the localities in evaluating the potential losses associated with wetlands development.

Guidelines [195] have been developed by MRC on the basis of studies conducted by VIMS that classify wetlands by type and set forth the environmental consequences of their alteration. Factors used in the evaluation process consisted of vegetative production and detritus availability, waterfowl and wildlife utilization, erosion buffering, water quality control, and flood buffering. With regard to alteration of wetlands, criteria are presented which are designed to reduce the adverse environmental impact associated with such alteration.

The second state function involves the review of local permit decisions and is the responsibility of MRC. The act lists three situations in which reviews are to be conducted [196]. The first arises whenever an appeal is taken from the local decision by the applicant for a permit or by the county, city, or town where the wetlands are located. The second situation for review is upon the request of the Commissioner of Marine Resources, who conducts a preliminary review of all decisions of local wetlands boards for the purpose of identifying those that should be reviewed by the commission. In order to request a review, the Commissioner must believe that the action violates the policy and standards of VWA or the MRC guidelines, and procedural requirements for notice to affected parties must be met. The third situation calling for commission review is where 25 or more freeholders of property within the political subdivision where the proposed project is located submit a petition to the commission alleging that the local board did not follow policy, standards or guidelines under VWA. With the exception of an applicant, individuals or groups not owning property within the political subdivision involved have no right to request a review of local decisions by MRC.

Procedural requirements [197] for the review process provide that the request for review or appeal must be made within ten days of the date of the local boards determination. MRC must reach its decision to uphold or alter the local decision within 45 days after notice of the review or appeal is received; however, provision is made for MRC to grant a continuance upon the motion of the applicant, the 25 or more freeholders, or the political subdivision involved.

MRC may alter the local decision or require further consideration by the local board only under the following conditions [198]:

The Commission shall modify, remand or reverse the decision of the wetlands board:

(1) If the decision of the wetlands board will not adequately achieve the policy and standards of this chapter or will not reasonably accommodate any guidelines which may have been promulgated by the Commission hereunder; or

(2) If the substantial rights of the appellant or the applicant have been prejudiced because the findings, conclusions or decisions are:

(a) in violation of constitutional provisions;
(b) in excess of statutory authority or jurisdiction of the wetlands board;
(c) made upon unlawful procedure;
(d) affected by other error of law;
(e) unsupported by the evidence on the record considered as a whole; or
(f) arbitrary, capricious, or an abuse of discretion.

The third function of state government under VWA, the administration of the wetlands permit program, is exercised by MRC under two conditions [199]. The first is the situation where an applicant desires to use or develop wetlands owned by the Commonwealth [200]. The second situation where the wetlands permit program is administered by MRC is where the governing body of a political subdivision has not adopted the wetlands zoning ordinance contained in VWA. MRC is required to process applications for wetlands permits in accordance with the provisions of the ordinance. MRC is responsible for administration of VWA in the following Tidewater counties and cities [201]:

Alexandria County
Arlington County
Caroline County
Chesterfield County
Colonial Heights
Fairfax County
Falls Church
Frederick County
Hanover County
Henrico County
King and Queen County
City of Nansemond
Norfolk
Petersburg
Portsmouth
Prince George County
Prince William County
Spotsylvania County
Surry

Decisions of MRC concerning permit applications originally processed by the agency, or concerning the review of the decisions of local wetlands boards, are subject to appeal to the circuit court having jurisdiction in the governmental subdivision in which the wetlands involved are located. The right of appeal is granted to a permit applicant, 25 or more freeholders of property in the political subdivision where the proposed project is located, and the political subdivision in which the project is proposed. VWA provides for the court to modify or reverse the decision, or to remand the case for further proceedings under the same conditions quoted above for MRC modification of local decisions. Decisions of the circuit court may be appealed to the Virginia Supreme Court [202].

MRC responsibilities under VWA have been extended to coastal primary sand dumes by CPSDPA [203]. Administration of this act is similar to administration of VWA and is a joint responsibility of MRC and the local wetlands boards.

Other Virginia Constraints Affecting Wetlands Use

In addition to the direct constraints imposed by VWA on use of privately owned wetlands, other institutional mechanisms can affect use in less direct ways. Of primary interest in this regard are local land-use planning and control activities and state control over use of state-owned submerged lands. Other provisions of state law of a more general nature may also affect wetlands use. Provisions of potential relevance include the state environmental review process, the state scenic rivers program, the state antiquities protection program, the project notification and review process applicable to certain activities of local governments, and state constraints on floodplain use. Unlike similar provisions in federal law, these mechanisms do not serve as direct impediments to the issuance of permits under VWA. In fact, permits under VWA are not conditioned on compliance with any requirements other than those in VWA itself. However, the provisions of law cited above have the potential to serve in parallel with VWA to constrain development activity affecting wetlands.

Local Land-Use Planning and Control

Current legislation [204] concerning planning requires each county and municipality in Virginia to create a planning commission. The principal duty of each local planning commission is the preparation of a comprehensive plan for the physical development of land within its jurisdiction [205]. Statutory guidelines for such plans provide for a survey of natural resources during plan preparation and specify that the plan may include "[t]he designation of areas for various types of public and private development and use, such as different kinds of residential, business, industrial, agricultural, conservation, recreation, public service, floodplain and drainage, and other areas..." [206]. This provision appears to authorize incorporation of natural resource considerations such as wetlands management into the planning process but leaves such matters largely to the discretion of the local commissions.

In addition to authority to conduct planning, authority to adopt and implement controls over land use is also delegated to local governmental units. The governing body of any county or municipality may enact a zoning ordinance through which special controls can be enforced [207]. Provisions of the enabling legislation for zoning specifying the purposes of such ordinances and the extent of regulatory authority delegated provide that consideration is to be given to "...conservation of natural resources..." and "...the preservation of flood plains..." [208]. Thus it appears that zoning could be used as a wetlands control mechanism to supplement VWA.

State Control Over Use of State-Owned Submerged Lands

Since certain types of coastal development activities require access to navigable waters or other utilization of state-owned lands in combination with private lands, state controls over use of public lands can affect use of private property. MRC administers a permit program through which nonexempted uses of state-owned beds of tidal waters must be authorized [209]. The following provision defines the scope of MRC considerations in its disposition of a permit application [210]:

> [T]he Commission shall...consider, among other things, the effect of the proposed project upon other reasonable and permissible uses of State waters and state-owned bottom lands, its effect upon the marine and fisheries resources of the Commonwealth, its effect upon the wetlands of the Commonwealth, except when its effect upon said wetlands has been or will be determined under...[VWA], and its effect upon adjacent or nearby properties, its anticipated public and private benefits, and, in addition thereto, the Commission shall give due consideration to standards of water quality as established by the State Water Control Board.

Consideration of Environmental Impact

The Virginia environmental review process [211] is narrow in scope and only applies to proposed construction of "major state projects," defined as all facilities exceeding $100,000 in cost except highway construction projects [212]. Coordination of the state review is the responsibility of the Virginia Council on the Environment (VCOE). For projects that are subject to review, VCOE disseminates relevant information to appropriate agencies and other parties for review. After the individual reviews are complete, VCOE synthesizes their contents into a report to the Governor. Construction funds for state projects covered by this review cannot be authorized without the written approval of the Governor after his consideration of VCOE's report [213].

The exemption of highway construction projects from the state environmental review process apparently was an attempt to prevent duplicate reviews since such projects generally invoke the federal review process due to federal funding or other involvement.

Protection of State Scenic Rivers

The Virginia Scenic Rivers Act [214] (VSRA) provides for designation of streams as scenic rivers by the General Assembly subsequent to study and recommendation by the Virginia Commission of Outdoor Recreation. VSRA provides that dams or other flow-impeding structures cannot be constructed in any stream designated as a scenic river without specific authorization by the Virginia General Assembly [215]. No direct constraint on other development of adjacent property is imposed; therefore scenic river designation has limited potential as a constraint on wetlands alteration.

The State Antiquities Protection Program

The Virginia Antiquities Act [216] (VAA) is intended to protect sites and objects having historic, scientific, archaeological, or educational value. The Virginia Historic Landmarks Commission is granted authority to control field investigations on state-owned archaeological sites [217], and the commission can control investigations on specially designated sites on other property with the permission of the owner [218]. However, VAA does not attempt to constrain land development or to require consideration of historical values in resource management decisions; the sole focus is on control of vandalism and unauthorized archaeological investigations and collection activities. Therefore VAA differs in this regard from federal legislation concerning historical values and does not constitute a significant constraint on wetlands development.

The State Project Notification and Review Process

A project notification and review system is in effect regarding applications to state agencies for grants or loans. Legislation [219] requires submittal of such applications to the appropriate planning district commission before formal application is made. If the commission determines that the proposed project does not have district-wide significance, it certifies that such proposal is not in conflict with the district plan or policies. A finding that district-wide significance exists requires a determination as to whether conflicts exist, and the commission may also consider whether the proposed project is properly coordinated with other existing or proposed projects within the district. The existence of conflicts or lack of coordination becomes a factor to be considered in final disposition of an application.

State Constraints on Floodplain Use

Two Virginia institutional mechanisms designed to reduce flood damages through restriction of floodplain use have the potential to constrain wetlands modification. These are the Flood Damage Reduction Act [220] (FDRA) and the Uniform Statewide Building Code [221] (USBC).

FDRA expresses a policy to reduce flood damage through management of floodplain use [222], but the act does not contain direct regulatory measures to achieve this aim. Recognition is given to the local responsibility for land-use control, with the state role identified as providing coordination and assistance and disseminating information. Although FDRA does not directly control floodplain use, the existence of a program to encourage local floodplain management has some potential to limit floodplain use and thereby prevent wetlands destruction.

USBC contains special restrictions with regard to structures in the 100 year floodplain [223]. The lowest floor of new construction, including substantial improvements to existing structures, must be at or above the elevation of the 100 year flood, except that nonresidential structures are exempt

if constructed according to prescribed conditions. New construction in "coastal high hazard areas," defined to include areas subject to high velocity waters such as hurricane wave wash, must be constructed on specified pilings or columns such that the lowest floor is elevated to or above the level of the 100 year flood. Use of fill for structural support of buildings in coastal high hazard areas is prohibited.

PUBLIC LAND ACQUISITION AND CONTROL AS A FACTOR IN WETLANDS MANAGEMENT

Public ownership of land has constituted an important factor in wetlands management. Wetlands located on various types of public property are subject to direct governmental management distinct from regulatory measures applicable to private lands. In addition to the ability of governmental bodies to manage wetlands on already existing public property, special land acquisition programs have been developed specifically as resource management tools. Several of these programs have applicability to wetlands. While a comprehensive discussion of all public land acquisition and management programs potentially affecting wetlands is beyond the scope of this report, several directly relevant programs will be considered.

Certain elements of the institutional framework cited in the previous section of this report regarding regulatory measures are also relevant with respect to land acquisition and management. For example, CZMA authorizes the creation of sanctuaries in addition to providing impetus for development of state regulatory mechanisms. Discussion of such legislation in this section will be limited to its applicability to public acquisition and management of property.

Land acquisition programs can sometimes be classified as either federal or state, but several are of a joint nature; therefore public land ownership activities can best be considered as a single program in which federal and state governments participate.

Evolution of Public Land Acquisition and Control Mechanisms

The issue of land ownership in coastal areas requires consideration of the boundary between public and private property and also involves the issue of federal-state relations. As noted in the previous section of this report, the shoreward extent of public ownership in Virginia has been defined as low water mark since 1819 [224]. The Commonwealth has exercised proprietary powers over submerged tidal lands below low water mark from an early date. The commerce clause [225] of the U.S. Constitution has been interpreted as a source of broad federal powers over tidal waters, but the U.S. Supreme Court has held that previously existing state ownership of lands beneath such waters was not relinquished to the United States government upon acceptance of the Constitution; rather, title to such lands was retained by the states [226]. The seaward boundary of state-owned lands was confirmed by the Submerged Lands Act [227] as a line three miles distant from the coastline.

Since the area of primary concern with regard to wetlands management lies above low water mark, public ownership of lands below this line is not as significant as such ownership occurring above low water mark. Therefore programs by which public entities acquire and control coastal property normally subject to private ownership are of primary interest.

Within both the federal and state governments, land is acquired and managed through a wide range of independent programs, each of which focuses on a relatively narrow objective. A few programs have been developed for the primary purpose of wetlands preservation, but several others have evolved that incidentally may encompass wetlands. For example, federal military reservations may contain significant wetlands areas. An executive order [228] issued in 1977 established wetlands protection as a general objective of the management of federal lands, but acquisition of property containing wetlands has not become a centralized function.

Several land acquisition programs have evolved with potential significance to wetlands management. One such area which has undergone considerable development consists of institutional mechanisms for preservation of wildlife habitat. Substantial development has also taken place in the area of institutional arrangements for acquisition of public recreational lands. Preservation of selected natural environments has constituted a third major area of institutional development.

Preservation of Wildlife Habitat

Among the earliest programs serving to convert wetlands into public ownership were federal efforts having the primary goal of wildlife protection. Although these efforts were ultimately to evolve into a major system of federal wildlife refuges, they were initiated near the beginning of the twentieth century as independent actions to preserve specific areas of habitat. Some sources indicate that the first such action occurred in 1903 when Pelican Island off Florida's east coast was set aside as a refuge for the brown pelican [229]. Others trace the program to the earlier presidential reservation of Alaska's Afognak Island for fish and wildlife protection in 1892 [230].

Establishment of a systematic program of refuge acquisition resulted from concern for migratory birds. One of the first expressions of this concern was passage of the Migratory Bird Treaty Act [231] in 1918. This Act implemented three international treaties with regard to migratory birds; however, it did not authorize acquisition of migratory bird habitat. Such authority was provided by the Migratory Bird Conservation Act [232] (MBCA) passed in 1929 under which the Secretary of the Interior was given power for purchase or rent of land.

A key aspect of the refuge acquisition program consists of institutional arrangements for funding. The program initially depended on congressional appropriations from general tax revenues. A significant departure from that approach was effected by enactment of the Migratory Bird Hunting Stamp Act

[233] (MBHSA) in 1934. MBHSA created a special fund to be comprised of proceeds from the sale of hunting stamps required for taking migratory waterfowl. Use of the fund was restricted to wildlife conservation purposes. After a period in which the fund was used primarily for refuge administration and operation, MBHSA was amended in 1958 to restrict its use to land acquisition purposes [234].

Expansion in the rate of land acquisition under the MBHSA fund was made possible by enactment of the Wetlands Loan Act of 1961 [235] (WLA) which authorized an advance appropriation to the fund to be repaid without interest. The Wetlands Loan Extension Act [236] (WLEA) and subsequent amendments have increased the maximum authorized advance to the fund and extended the repayment period. Amendments adopted in 1976 also attempted to broaden the base of support for the fund by renaming the stamp the "migratory bird hunting and conservation stamp" [237]. Another expansion in the scope of the refuge program had occurred in 1962 with passage of the Refuge Recreation Act [238] (RRA) which provided for compatible recreational use of fish and wildlife conservation areas.

In addition to land acquisition authority related to protection of migratory birds, more general authority for acquisition has been established by other federal legislation. The Fish and Wildlife Act of 1956 [239] (FWA) authorized the Secretary of Interior to acquire land for management and conservation of wildlife resources. A 1958 addition [240] to the Fish and Wildlife Conservation Act [241] (FWCA) authorized acquisition for the purpose of that act.

Refuges acquired for a variety of wildlife conservation purposes were merged in 1966. This consolidation was achieved by means of the National Wildlife Refuge System Administration Act of 1966 [242] which created the National Wildlife Refuge System and provided for its administration.

Meanwhile the scope of the wildlife habitat acquisition program had been expanded in 1937 to include federal assistance to the states through enactment of the Federal Aid in Wildlife Restoration Act [243], also known as the Pittman-Robertson Act (PRA). PRA created a special fund to consist of revenues from a federal excise tax on the sale of firearms and ammunition. A similar program for funding of state fish restoration activities was established by the Federal Aid in Fish Restoration Act [244], also known as the Dingell-Johnson Act (DJA), passed in 1950. Funds for this program were to be derived from a tax on fishing equipment.

A funding program broader than those under PRA and DJA was established in 1964 with the passage of the Land and Water Conservation Fund Act [245] (LWCFA). This fund includes certain wildlife purposes but also encompasses federal and state outdoor recreation programs in general. Authorization for use of limited funds under LWCFA for acquisition of habitat for protection of endangered species was provided by the Endangered Species Preservation Act of 1966 [246], which also authorized use of other land acquisition authority for the endangered species program. Limitations on use of funds under LWCFA in this program were removed by the more comprehensive Endangered Species Act of 1973 [247] (ESA).

Virginia's program for acquisition of wildlife habitat has been closely related to these federal funding programs, especially PRA and DJA. Although land acquisition authority was created at a relatively early date [248], major acquisitions have primarily been accomplished since establishment of the federal funding programs. The wetlands component of the acquisition program began in 1952 with the purchase of Hog Island Refuge in Surry County and has since encompassed several wetlands areas [249].

Acquisition of General Recreational Lands

Establishment of parks and other areas of recreational interest has also served as a significant mechanism for wetlands preservation. Areas of recreational interest have been designated and protected through programs at all governmental levels, and land acquisition programs have been established specifically for this purpose. Reservation of lands already in public ownership has also been used as a means to preserve lands with special recreational potential, especially at the federal level.

Acquisition and reservation of land for major recreational areas by the federal government traditionally have involved direct congressional and presidential action. Establishment of major recreational areas initially was accomplished through individual federal legislation [250]. Continuing authority for presidential reservation of public lands having historic or scientific interest was established by the Antiquities Act of 1906 [251]. Legislation [252] regarding the basic operations of the National Park Service was enacted in 1916, but this legislation focused on management of recreational lands and not on further acquisition. Additional legislation passed in 1953 [253] and 1970 [254] defined the national park system and made further provisions for its management.

Acquisition of a variety of recreational areas has encompassed wetlands, but the national seashore program has been particularly significant with regard to preservation of marine wetlands. The first unit of this program was Cape Hatteras National Seashore established in 1937 [255]. These seashore areas have been established for recreational purposes, but the intent to preserve natural features also generally has been included [256]. In Virginia, this program has encompassed Assateague Island National Seashore established in 1965 [257].

A systematic program for funding of recreational land acquisitions was established in 1965 by the previously cited LWCFA [258] which provided support for federal and state outdoor recreation programs. A more restricted recreational funding program was established by the Housing and Community Development Act of 1974 [259] (HCDA) which encompasses financial assistance to localities for recreational and other land-acquisition purposes.

A significant development with regard to federal land acquisition authority consisted of the adoption of the Federal Water Project Recreation Act [260] (FWPRA) in 1965. This legislation authorized land acquisition for recreational purposes by federal agencies involved in water resource development projects.

In Virginia, authority for acquisition of lands for general recreation was established with creation of the Virginia Division of State Parks in 1926 [261]. The state park system was initiated in the 1930's and originally developed as part of the Civilian Conservation Corps program. Virginia's participation in the land and water conservation fund program had its origins in a study by the Virginia Outdoor Recreation Study Commission that had been directed by the 1964 state legislature [262]. The study commission report [263] contained several legilative proposals subsequently enacted into law, including a statute creating the Virginia Commission of Outdoor Recreation [264] (COR) and the Open-Space Land Act [265] (OSLA).

Preservation of Selected Natural Environments

The growth in public land acquisition programs has included the singling out of certain types of natural environments for narrowly focused preservation efforts. Concern for the protection of certain unique environments has been expressed at the state level, but manifestations of this concern have largely been limited to regulatory measures. State land acquisition authority has remained limited to general provisions applicable to recreational and fish and wildlife lands. At the federal level, however, general authority for land acquisition has been supplemented by more specific provisions related to environmental preservation.

One area in which federal preservation efforts have been closely related to wetlands management consists of the creation of estuarine and marine sanctuaries. One of the earliest expressions of concern for public acquisition of this type was legislation passed in 1968 providing for the Secretary of Interior to conduct a study of estuary areas [266]. One purpose of this study was the determination of the need for public acquisition of such areas. This program never received adequate funding. A more concrete preservation effort was included in the 1972 CZMA which made provision for grants to states for creation of estuarine sanctuaries to serve as natural field laboratories [267]. Purposes for which such sanctuaries could be created were expanded by amendments to CZMA in 1976 [268]. Enactment of the Marine Protection Research and Sanctuaries Act of 1972 [269] (MPRSA) added another mechanism for creation of sanctuaries.

Other preservation programs have been developed which employ economic incentives to encourage protection of wetlands continuing to be held in private ownership. The primary example of this type of program is that created by the Water Bank Act [270] (WBA) passed in 1970. This act authorized the Secretary of Agriculture to enter into agreements with private landowners for preservation of wetlands over specified periods of time. The program originally was limited to inland freshwater wetlands but was amended in 1980 to allow inclusion of other types such as marine wetlands [271].

The purposes of WBA were further promoted by legislation [272] adopted in 1973. This act provided authority for the secretary to purchase perpetual easements to carry out the purposes of WBA and to achieve other rural conservation objectives, some of which have the potential to protect marine wetlands.

Two other federal preservation activities not directly applicable to wetlands but with some potential as wetlands acquisition mechanisms have been established. The Wilderness Act (WA) enacted in 1964 provided for limited land acquisition in connection with designation of wilderness areas on lands already under federal ownership [273]. WSRA, enacted in 1968, also contained limited acquisition authority in connection with streams designated as part of the wild and scenic rivers program established by the act [274].

Although established to reduce flood damages rather than as environmental preservation mechanisms, institutional arrangements for public acquisition of flood-prone lands also have potential for tidal wetlands preservation. The two principal measures created have included a provision in NFIA authorizing acquisition of certain flood-prone property [275] and a provision in the Water Resources Development Act of 1974 [276] (WRDA of 1974) mandating consideration of floodplain acquisition in federal planning for flood protection.

A measure extending beyond the preservation of existing wetlands to include establishment of new wetlands was enacted into law in 1976. The Water Resources Development Act of 1976 [277] (WRDA of 1976) gave COE limited authority to create wetlands in connection with water resource development projects.

Current Status of Public Land Acquisition and Control as a Factor in Wetlands Management

Consideration of the evolution of public land acquisition and control has indicated the importance of public land ownership as a factor in wetlands management. This recognition is reflected in current policies at the federal and state levels of government regarding management of existing public lands. In addition, several programs for acquisition of new lands for public purposes currently exist which are likely to further expand public wetlands acreage.

Public Land Management Policy Relative to Wetlands

Wetlands exist on a variety of existing public land holdings, some of which are owned and managed for purposes completely unrelated to wetlands; therefore the integration of wetlands considerations into general policy for public land management is a significant aspect of the institutional framework for wetlands management.

This integration has been more fully achieved at the federal level of government than in the Commonwealth. The basic statement of federal policy in this regard is contained in an executive order which provides as follows [278]:

> Each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in

> carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

The executive order contains the more specific constraint that each agency must avoid undertaking or assisting new construction in wetlands without a finding that no practicable alternative exists and that all practicable measures to minimize harm to wetlands are included [279]. The order also places the following restriction on the disposal of property containing wetlands [280]:

> When Federally-owned wetlands or portions of wetlands are proposed for lease, easement, right-of-way or disposal to non-Federal public or private parties, the Federal agency shall (a) reference in the conveyance those uses that are restricted under identified Federal, State, or local wetlands regulations; and (b) attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successor, except where prohibited by law; or (c) withhold such properties from disposal.

State policy regarding wetlands on state-owned lands has not been ennunciated as clearly. VWA declares a policy of preserving wetlands [281], but the focus of this legislation is on use of privately owned wetlands. In fact the act exempts from its provisions "...[g]overnmental activity on wetlands owned or leased by the Commonwealth of Virginia, or a political subdivision thereof..." [282], provided such activity is otherwise permitted by law. Where state-owned subaquaous beds are involved (generally from low water mark [283] seaward to a line three miles distant from the coastline) [284], use is subject to a special permitting program administered by MRC [285]. This program is subject to several exemptions, including port facilities owned or leased by the Commonwealth or its political subdivisions and private noncommerical piers [286]. Criteria for evaluating applications in each case where a permit is required include the requirement that MRC consider the impact of the proposed activity on wetlands, except where such impact is being considered under VWA [287].

Land Acquisition Programs Potentially Applicable to Wetlands

The current institutional framework for public land acquisition continues to reflect its diverse origins. Some coordination and consolidation have been achieved, but the current framework is relatively complex due to the independent land acquisition programs based on a variety of individual legislative enactments.

These programs lend themselves to various categorizations. For purposes of discussion here, a four-part classification will be used: selected natural environments, wildlife habitat, general recreational lands, and flood-prone lands. These categories are not exclusive but provide a useful framework for discussion of the diversity of individual programs in existence.

Preservation of Selected Natural Environments

Perhaps of greatest potential applicability to wetlands acquisition are governmental programs designed to preserve certain types of natural environments through the mechanism of public ownership. Most of the active programs in this area are federal in nature; however, some of the state programs discussed later in this report with regard to acquisition of wildlife and recreational lands may be applicable to preservation of natural environments as well [288]. Although beyond the scope of this report, certain private organizations also are involved in significant preservation activities. For example, the Nature Conservancy, a national organization devoted to the preservation of ecologically significant lands, has acquired a majority of the barrier islands off the Eastern Shore of Virginia [289] and therefore has become a significant force for wetlands preservation. Individual community acquisition of wetlands independently of federal and state programs can also be a significant factor [290] but is also beyond the scope of this report.

Federal preservation programs of particular interest are those for creation of estuarine and marine sanctuaries, the designation and management of the national wild and scenic rivers system, and the designation and management of the national wilderness preservation system. Also of interest are federal incentives for protection of wetlands on private lands and COE authority for creation of wetlands.

Estuarine and Marine Sanctuaries. CZMA contains several provisions of potential applicability to the establishment of sanctuaries in coastal areas. The most direct measure provides for grants to the states for acquisition, development, and operation of estuarine sanctuaries [291]. Such sanctuaries can be created for the purpose of establishing natural field laboratories for study of coastal zone processes, for providing access to public beaches and other public coastal areas, and for the preservation of islands. NOAA guidelines [292] for this program state that such sanctuaries may include any part of an estuary, adjacent transitional seas, and adjacent uplands constituting a natural unit. An objective of this program is the preservation of representatives of each type of estuarine ecosystem, specifically to include coastal marshes [293].

A second provision of CZMA with possible implications for wetlands preservation is the requirement that state coastal management programs must, as a condition for federal approval, contain procedures "...whereby specific areas may be designated for the purpose of preserving or restoring them for their conservation, recreational, ecological, or aesthetic values" [294].

A third relevant provision of CZMA is the requirement that state programs include an inventory and designation of "areas of particular concern within the coastal zone" [295]. Regulations [296] promulgated by NOAA for implementation of CZMA indicate that such areas are likely to encompass wetlands. For example, areas identified for possible designation include "[a]reas of high natural productivity or essential habitat for living resources, including fish, wildlife, and the various trophic levels in the food web critical to their well-being" [297].

MPRSA provides for the Secretary of Commerce, with the approval of the President and subject to the veto of an affected state, to designate areas of the ocean as marine sanctuaries [298]. Such sanctuaries are to be located between the high tide line and the outer edge of the continental shelf. The scope of the MPRSA sanctuaries program includes preservation for the purposes of protecting habitats representative of important marine systems; maintenance of particular species by protection of such areas as migratory pathways, spawning grounds, and nursery grounds; maintaining research areas to establish ecological baselines against which to compare and predict the effect of man's activities; augmenting public lands for recreation and aesthetic enjoyment; and protecting unique geological, oceanographic, or living resource features [299]. After sanctuary designation, activities within its boundaries are subject to regulations of the Secretary of Commerce [300], with each day of violation subject to a maximum fine of $50,000 [301]. NOAA has indicated an intent to coordinate the marine sanctuaries program with the estuary sanctuary program under CZMA [302].

National Wild and Scenic Rivers System. Another type of preservation program with implications for wetlands preservation consists of the National Wild and Scenic Rivers System as authorized by WSRA, considered in a previous section is a regulatory constraint with regard to alteration of wetlands [303]. WSRA also authorizes the Secretary of Interior and Secretary of Agriculture to acquire land or interests in land within the boundaries of a component of the national wild and scenic river system [304]. Fee title acquisition under this provision cannot exceed an average of 100 acres per mile on both sides of a given river. It is conceivable that a substantial portion of such acquisitions could consist of wetlands in some situations. However, none of Virginia's coastal streams has been designated as part of the wild and scenic river system to date.

National Wilderness Preservation System. The National Wilderness Preservation System created by WA is primarily intended to consist of specially designated lands already under federal ownership [305]. However, the Secretary of Agriculture is authorized to acquire privately owned land within the perimeter of a designated wilderness area if the owner concurs in such acquisition and it is specifically authorized by Congress [306].

At present the designated wilderness areas in Virginia have inland locations [307]. The primary federal areas containing wetlands that may have potential for wilderness designation consist of wildlife refuges managed by the U.S. Fish and Wildlife Service. Such designation would require that the areas in question meet specified criteria, the most basic of which is that the land must have retained its primeval character without permanent improvements or human habitation. Such areas generally must contain at least 5000 acres or be of "...sufficient size as to make practicable its preservation and use in an unimpaired condition..." [308]. Areas within wildlife refuges have been designated as components of the wilderness preservation system in other states (e.g., Swanquarter Wilderness in Swanquarter Wildlife Refuge, North Carolina [309]).

Governmental Incentives for Preservation of Private Wetlands. WBA seeks to preserve wetlands through contractual agreements between the Secretary of Agriculture and private landowners. The secretary is authorized to make payments to landowners in exchange for an agreement, a key provision of which

is that wetlands will not be drained or otherwise destroyed [310]. WBA does not explicitly encompass coastal wetlands, but discretion is provided for the secretary to include "...such other wetland types as the Secretary may designate" [311]. The legislative history of WBA expresses an intent that this provision apply to coastal wetlands [312].

Other legislation [313] exists which is intended to carry out the purposes of WBA and otherwise provide for a rural environmental conservation program. The Secretary of Agriculture is granted authority to acquire perpetual easements to promote sound use and management of floodplains, shore lands, and aquatic areas [314]. Emphasis in this program is on inland areas, but the legislative authority appears broad enough to encompass coastal wetlands.

Public Acquisition of Flood-Prone Lands. Public acquisition of flood-prone lands has not acquired the status of a primary mechanism for reduction in flood losses, but limited authority exists in federal law for such action. A principal example consists of a provision requiring all federal agencies engaged in flood control planning to consider nonstructural solutions, including the "...acquisition of floodplain lands for recreational, fish and wildlife, and other public purposes" [315]. A second provision contained in national flood insurance legislation authorizes the Director of the Federal Emergency Management Agency to acquire certain flood-damaged properties in flood-risk areas [316]. Such property is to be transferred to state or local agencies, subject to the constraint that its subsequent use be consistent with sound land use and management.

COE Wetlands Creation. WRDA of 1976 contains a provision that goes beyond preservation of existing wetlands by authorizing COE to create wetlands areas as part of water resource development projects [317]. Such wetlands creation is viewed as a means of disposing of dredged material resulting from a development project and is limited to those cases where the Chief of Engineers finds that environmental, economic, and social benefits of the wetlands justifies the additional cost above that associated with alternative measures of disposal. This additional cost is limited to $400,000. A further restriction imposed by WRDA is the requirement for evidence indicating that the wetlands area to be created will not be substantially altered or destroyed by natural or man-made causes.

Preservation of Wildlife Habitat

Wildlife habitat acquisition is accomplished through several federal and state programs. At the federal level, wildlife refuges generally are administered by the Fish and Wildlife Service as part of the National Wildlife Refuge System [318]; however, land acquisition authority and funding arrangements are contained in several individual statues.

A basic source of acquisition authority is MBCA which authorizes the Secretary of Interior to acquire property or property interests for migratory bird management purposes [319]. Such action is subject to the approval of the Migratory Bird Conservation Commission, consisting of the Secretaries of Interior, Transportation, and Agriculture and two members each of the House and Senate [320]. Conveyance of property under this provision is also subject to approval by the state in which the land is located [321].

Several other statutes supplement and expand the authority under MBCA. FWA, which establishes the U.S. Fish and Wildlife Service [322], provides that the Secretary of Interior shall "...take such steps as may be required for the development, advancement, management, conservation, and protection of fish and wildlife resources including...acquisition by purchase or exchange of land and water, or interests therein" [323].

FWCA, which recognizes a public interest in fish and wildlife resources and provides procedures for consideration of such values in water resources development activities, provides that under certain conditions "...land, waters, and interests therein may be acquired by Federal construction agencies for the wildlife conservation and development purposes of...[FWCA]" [324].

RRA, providing for compatible public recreational use of fish and wildlife conservation areas, authorizes the Secretary of Interior to acquire additional land for these purposes adjacent to such conservation areas [325]. Such acquisitions become a part of the adjacent conservation area but must be made with funds specifically appropriated by Congress or donated for such purposes; they cannot be made with funds from the sale of migratory bird hunting and conservation stamps.

ESA includes land acquisition as one of several mechanisms for the protection of endangered and threatened species of plants and animals [326]. The act directs use of land acquisition authority under FWA, FWCA, and MBCA. Additional land acquisition authority is also provided for achieving the purposes of ESA, including use of funds available pursuant to LWCFA.

FWPRA requires federal agencies involved in water resources planning to consider opportunities for outdoor recreation and fish and wildlife enhancement [327]. The act states that lands may be provided to preserve the recreation and fish and wildlife enhancement potential of such projects, subject to certain constraints [328].

Institutional mechanisms for funding land acquisition for fish and wildlife purposes are equally complex. A basic funding source is provided by MBHSA which requires the purchase of an annual bird hunting and conservation stamp as a condition for hunting migratory waterfowl [329]. Proceeds from the sale of such stamps are set aside in a special fund known as the migratory bird conservation fund. With the exception of related costs and certain administrative expenses, the fund is used for acquisition of areas for migratory bird refuges under provisions of MBCA and for acquisition of small wetlands and pothole areas, generally known as waterfowl production areas [330]. Through WLA and subsequent extensions, Congress has authorized the appropriation of $200,000,000 to the fund during the period from July 1, 1961 to September 30, 1983 to prevent the loss of important wetlands and other essential waterfowl habitat [331]. Such appropriations are to be repaid from the fund without interest.

Two federal funding programs exist which function through provision of financial assistance to state projects for fish and wildlife purposes. PRA authorizes federal financial participation in state "wildlife restoration projects," which include the acquisition of property interests in land or water areas suitable for feeding, resting, or breeding places for wildlife

[332]. The source of such assistance is the federal aid to wildlife restoration fund, which consists of revenues from a special tax on the sale of firearms and ammunition [333] and archery equipment [334]. After deductions from the fund for federal administrative expenses associated with the PRA program and MBCA, money from the fund is allocated to the states on the basis of land area, population, and number of hunting license holders [335]. Such funds can be used by the states to cover up to 75 percent of the costs of approved projects [336]. As a condition for participation in this program, a state must enact a statute prohibiting the diversion of hunting license fees to purposes other than the administration of the state fish and game department [337]. Virginia has enacted the required prohibition [338] and participates in the program.

A similar program applicable to fishery management projects is authorized by DJA which encompasses the acquisition of property interests in water or land areas suitable as hatching, feeding, resting, or breeding places for fish [339]. Revenues for this program are derived from a tax on the sale of fishing equipment [340]. DJA conditions state participation on enactment of a prohibition against diversion of fishinglicense fees to purposes other than operation of the state fish and game department [341]; Virginia has enacted the required prohibition and participates in the program.

An additional federal funding program that includes both federal and state projects is authorized by LWCFA. This program encompasses acquisition of land for fish and wildlife purposes [343] but is more oriented toward general recreation; therefore the LWCFA program will be discussed in more detail in the next section.

At the state level, the Virginia Commission of Game and Inland Fisheries (CGIF) has the authority "...to acquire by purchase, lease, exchange, gift or otherwise, such lands and waters anywhere in this state as it may deem expedient and proper..." [344]. Pursuant to this authority, CGIF has acquired a number of tracts of land which are operated as wildlife management areas. Much of this land has been acquired through the cooperative federal-state funding programs described above. Several of the areas are outside the coastal region, but some are located in coastal areas and contain marine wetlands. For example, Mockhorn Island, an area exceeding 9,100 acres in size, consists entirely of marine wetlands [345].

Acquisition of General Recreational Lands. Outdoor recreation is a significant purpose for which public authorities acquire land. Recreational lands are acquired by all levels of government, often through cooperative programs involving two or more levels.

At the federal level of government, FWPRA provides general authority for provision of outdoor recreation in connection with federal water projects [346]. Establishment of major federal recreational areas typically involves individual legislation or presidential action. For example, establishment of national parks and certain other federal recreational areas requiring acquisition of property is usually accomplished through separate legislation [347]. A primary mechanism for establishment of recreational areas on existing federal lands consists of presidential action under AA [348]. However, presidential authority under AA is limited [349], and Congress continues close involvement in this program [350].

With regard to the preservation of wetlands in the Commonwealth, one of the most significant federal recreational areas to have been established by individual legislation is Assateague Island National Seashore. The authorizing legislation provides for the area to be administered "...for general purposes of public outdoor recreation, including conservation of natural features contributing to public enjoyment" [351]. Thus it would appear that wetlands preservation would be consistent with the purposes of the legislation.

Another significant element of the federal institutional framework for recreational land acquisition is the LWCFA program mentioned previously as a mechanism for acquisition of land for wildlife preservation [352]. The land and water conservation fund receives revenues from a variety of sources such as special recreational area user fees, revenues from disposal of surplus federal property, the federal tax on motorboat fuels, certain receipts under the Outer Continental Shelf Lands Act, and general appropriations [353]. Forty percent of the fund generally is allocated to federal purposes, with the remaining 60 percent used for grants to the states [354]. Authorized federal uses of the fund encompass land acquisition for a variety of purposes, including acquisition within the exterior boundaries of the national park system or other outdoor recreation areas administered by the Secretary of Interior [355].

Administration of Virginia's portion of the land and water conservation fund is the responsibility of COR [357]. COR maintains the state's outdoor-recreation plan as a condition for participation in the federal program. COR is authorized to acquire property to implement the plan, providing that it is later transferred to the appropriate state management agency [358]. COR has used the fund primarily for acquisition of state park lands and for grants for local and regional park acquisitions.

Management of the state park system is within the jurisdiction of the Virginia Division of State Parks [359] of the Virginia Department of Conservation and Economic Development (DCED). DCED possesses the authority [360] to acquire

> ...areas, properties, lands or any estate or interest therein, of scenic beauty, recreational utility, historical interest, remarkable phenomena or any other unusual features which in the judgment of the Board [of Conservation and Economic Development] should be acquired, preserved and maintained for the use, observation, education, health and pleasure of the people of Virginia... .

The current state park system encompasses a variety of lands across the state, some of which are in coastal areas and contain wetlands.

Another recreation-related land acquisition effort with potential for wetlands preservation consists of programs for the acquisition and preservation of open space. At the federal level, HCDA authorizes financial assistance to localities, and the list of activities eligible for assistance includes the acquisition of property for the conservation of natural resources, open spaces, scenic areas, and recreational opportunities [361]. Although no specific reference is made to wetlands, it appears that financial assistance under HCDA could encompass wetlands areas in certain situations.

In Virginia, OSLA provides that any public body (defined as any state agency with authority to acquire land for public use, park authority, or public recreational facilities authority) [362] can acquire property in an urban or urbanizing area for preservation of open-space land [363]. OSLA specifically provides that such acquisition can include wetlands [364].

CONCLUSION

This review of the institutional framework for management of Virginia's marine wetlands indicates that wetlands are a special area of concern within the field of environmental control. Modification of marine wetlands generally is subject to direct permitting programs involving local, state, and federal governments. The primary legislation in this area consists of the Virginia Wetlands Act and section 404 of the Clean Water Act, but a wide range of other environmental control measures either constrain these permitting procedures or exert more indirect influence on wetlands use. Therefore wetlands modification can be classified as one of the most highly regulated activities involving use of privately-owned lands.

Existing simultaneously with this extensive regulatory framework is an equally complex set of institutional mechanisms associated with public land acquisition and management. Wetlands protection has been identified as a basic objective of public land management, especially at the federal level of government. Several land acquisition programs have been employed to convert wetlands into public ownership or have the potential for much application. Thus public ownership is a fundamental aspect of management of the marine wetlands resource.

Due to the complexity of the institutional framework and the involvement of different levels of government, including multiple agencies within government levels, coordination among agencies and programs is an important issue. Coordination is in evidence in certain areas. For example, a consolidated permit application has been developed by local, state, and federal governments which encompasses applications for a local wetlands board permit; a COE permit to construct, dredge, or fill in navigable waters; an MRC permit for use of state-owned submerged lands; and water quality certification from SWCB under section 401 of CWA [365]. State wetlands management activities in general reflect considerable interaction with federal programs, but this interaction is not as extensive as in certain other states. A primary indication of this fact is the lack of an approved state program under CZMA. Neither has the state attempted to obtain delegated authority for administration of the CWA dredge and fill permitting program, but the impact of this decision is not significant with regard to marine wetlands since such delegation generally cannot include tidal waters. In addition, substantial coordination between COE and state regulatory actions is being achieved as indicated above. Even when such coordination is considered, however, the institutional framework for wetlands management exhibits a complexity unequalled in many areas of environmental concern.

FOOTNOTES

[1] See, e.g., Act of Sept. 19, 1890, C. 907, sec. 7, 26 Stat. 4-54.

[2] Rivers and Harbors Act of 1899, Act of Mar. 3, 1899, C. 425, 30 Stat. 1151, now 33 U.S.C.A. 401 et seq. (1970 and Supp. 1980 for notes regarding transfer of functions).

[3] Federal Power Act, Act of June 10, 1920, C. 285, 41 Stat. 1063, now 16 U.S.C.A 791a et seq. (1974 and Supp. 1980).

[4] Department of Transportation Act, P.L. 89-670, Oct. 15, 1966, 80 Stat. 931, now 49 U.S.C.A. 1651 et seq. (1976 and Supp. 1980) at sec. 1655 (g) (6)(A) (1976).

[5] Federal Water Pollution Control Act Amendments of 1972, P.L. 92-500, 86 Stat. 816, now 33 U.S.C.A. 1251 et seq. (1978 and Supp. 1980).

[6] Executive Order 11574, Dec. 23, 1970, 35 F.R. 19627.

[7] RHA supra n. 2 at 33 U.S.C.A. 404 (1970).

[8] See, "Regulatory Programs of the Corps of Engineers," 42 F.R. 37121 (1977) at 37122, now 33 C.F.R. 320 (1980).

[9] See, Id. at 37163.

[10] P.L. 94-587, sec. 154, Oct. 22, 1976, 90 Stat. 2932, now 33 U.S.C.A. 591 (Supp. 1980).

[11] Fish and Wildlife Coordination Act, Act of Mar. 10, 1934, C. 55, 48 Stat. 401, now 16 U.S.C.A. 661 et seq. (1974 and Supp. 1980).

[12] For a detailed analysis of the early provisions of FWCA and its subsequent development, See, M. Bean, The Evolution of National Wildlife Law (1977), at 193-209.

[13] "Memorandum of Understanding Between the Secretary of the Interior and the Secretary of the Army," July 13, 1967.

[14] See, "Regulatory Programs" supra n. 8 at 37122.

[15] Id.

[16] Zabel v. Tabb, 430 F. 2d 199 (5th Cir. 1970), cert. den. 401 U.S. 910 (1972).

[17] See, "Annotation: Authority of Secretary of Army to Deny Dredging and Filling Permit for Ecological Reasons Under Sec. 10 of Rivers and Harbors Act of 1899, 33 U.S.C.A. 403," 25 A.L.R. Fed. 706 (1975), at 711-14.

[18] National Environmental Policy Act of 1969, P.L. 91-190, Jan. 1, 1970 83 Stat. 852, now 42 U.S.C.A. 4321 et seq. (1977 and Supp. 1980).

[19] See, e.g., United States v. Sexton Cove Estates, Inc. 526 F. 2d 1293 (5th Cir. 1976).

[20] National Flood Insurance Act of 1968, P.L. 90-448, Aug. 1, 1968, 82 Stat. 572, now incorporated into 42 U.S.C.A. sec. 4001 et seq. (1977 and Supp. 1980).

[21] Flood Disaster Protection Act of 1973, P.L. 93-234, title 1, sec. 108 (a), Dec. 31, 1973, 87 Stat. 979, now incorporated into 42 U.S.C.A. 4001 et seq. (1977 and Supp. 1980).

[22] Created by reorganization Plan No. 3 of 1978, 43 F.R. 41943, implemented by Executive Order 12127, Mar. 31, 1979, 44 F.R. 19367 and Executive Order 12148, July 20, 1979, 44 F.R. 43239.

[23] Executive Order No. 11988, May 24, 1977, 42 F.R. 26951, sec. 2(a)(2).

[24] FWPCA supra n. 5.

[25] Id. at 33 U.S.C.A. 1344(a) (1978).

[26] Id. sec. 1362(7).

[27] FWCPA, supra n. 16, sec. 1251(a).

[28] 2 U.S. Code Cong. and Adm. News 3668 (1972).

[29] See, "Regulatory Programs" supra n. 8 at 37123.

[30] See, 5 Environmental Law Reporter 10100 (1975).

[31] Natural Resources Defense Council v. Callaway, 392 F. Supp. 685 (D.C.D.C. 1975).

[32] "Permits for Activities in Navigable Waters or Ocean Waters," 40 F.R. 19766 (1975).

[33] See, e.g., 5 Environmental Law Reporter 10102 (1975) and "Comments: Jurisdictional Expansion of the Army Corps of Engineers Under the Federal Water Pollution Control Act Amendments of 1972," 13 Houston Law Review 135 (1975) at 145.

[34] "Permits for Activities in Navigable Waters or Ocean Waters," 40 F.R. 31319 (1975). These regulations subsequently have been modified but their scope and approach have remained basically the same. Current regulations are published at 33 C.F.R. 323 (1980) and are discussed later in this report.

[35] Id. at 31326.

[36] For detailed analysis of these proposed amendments, See, L. Caplin, "Is Congress Protecting Our Water? The Controversy Over Section 404, Federal Water Pollution Control Act Amendments of 1972," 31 University of Miami Law Review 445 (1977).

[37] Clean Water Act, P.L. 95-217, Dec. 17, 1977, 91 Stat. 1567, now 33 U.S.C.A. 1251 et seq. (1978 and Supp. 1980).

[38] Id. at 33 U.S.C.A. 1344(f) (1978).

[39] Id. sec. 1344(g).

[40] 3 U.S. Code Cong. and Adm. News 4326 (1977) at 4336.

[41] Coastal Zone Management Act of 1972, P.L. 92-583, Oct. 27, 1972, 86 Stat. 1280, now 16 U.S.C.A. 1451 et seq. (1974 and Supp. 1980).

[42] Executive Order 10807, Mar. 13, 1959, 24 F.R. 1897. The Council was abolished by P.L. 94-282, May 11, 1976, 90 Stat. 472.

[43] Reorganization Plan No. 2 of 1962, 27 F.R. 5419.

[44] See, 2 U.S. Code Cong. and Adm. News 2263 (1966).

[45] Marine Resources and Engineering Development Act of 1966, P.L. 89-454, June 17, 1966, 80 Stat. 203, now 33 U.S.C.A. 1101 et seq. (1978).

[46] National Sea Grant College and Program Act of 1966, P.L. 89-688, Oct. 15, 1966, 80 Stat. 998, now 33 U.S.C.A. 1121 et seq. (1978).

[47] Commission of Marine Science, Engineering and Resources, "Our Nation and the Sea" (1969).

[48] P.L. 90-454, Aug. 3, 1968, 82 Stat. 626, now 16 U.S.C.A. 1221 et seq. (1974).

[49] U.S. Fish and Wildlife Service, Department of the Interior, National Estuary Study, 7 vols. (1970).

[50] See 3 U.S. Code Cong. and Adm. News 4776 (1972) at 4781.

[51] See Z. Zile, "A Legislative-Political History of the Coastal Zone Management Act of 1972," 1 Coastal Zone Management Journal 235 (1974), at 269.

[52] Reorganization Plan No. 4 of 1970, 35 F.R. 15627.

[53] The Virginia response to CZMA incentives is discussed later in this report.

[54] P.L. 94-370, sec. 7, July 26, 1976, 90 Stat. 1019, now incorporated into CZMA supra n. 41.

[55] See, e.g., Deepwater Port Act of 1974, P.L. 93-627, sec. 2, Jan. 3, 1975 88 Stat. 2126, now 33 U.S.C.A. 1502 et seq. (1978) at sec. 1508(c), and provisions of the Outer Continental Shelf Lands Act Amendments of 1978, P.L. 95-372, title II, sec. 206, Sept. 18, 1978, 92 Stat. 647, now 43 U.S.C.A. 1340(c)(2) (Supp. 1980).

[56] RHA supra n. 2 at 33 U.S.C.A. 403.

[57] 33 C.F.R. 329.4 (1980).

[58] Id. at sec. 329.8.

[59] 33 U.S.C.A. 59L (Supp. 1980).

[60] State Water Control Board v. Hoffman, 574 F. 2d 191 (4th Cir. 1978).

[61] 33 C.F.R. 322.2(a) (1980).

[62] See, e.g., United States v. Sexton Cove Estates, Inc., supra n. 19.

[63] CWA supra n. 37 at 33 U.S.C.A. 1344 (1978).

[64] Id. sec. 1362(7).

[65] 33 C.F.R. 323 et seq. (1980).

[66] Id. sec. 323.2(a).

[67] Id. sec. 323.2(c).

[68] Id. sec. 323.2(d).

[69] See text at n. 57 supra.

[70] FPA supra n. 3. Administrative authority is transferred to the Federal Energy Regulatory Commission by 42 U.S.C.A. 7172(a)(1)(A) (Pamp. 1979).

[71] See, e.g., Scenic Hudson Preservation Conference v. Callaway, 370 F. Supp. 162 (S.D.N.Y. 1973) and Sierra Club v. Morton, 400 F. Supp. 610 (N.D. Calif. 1975).

[72] 33 C.F.R. 323.2(k) (1980).

[73] Id. sec. 323.2(L).

[74] CWA supra n. 37 at 33 U.S.C.A. 1344(f)(1)(1978).

[75] 33 C.F.R. 323.2(m) (1980).

[76] Id. sec. 323.3(c).

[77] Id. sec. 323.4.

[78] Id. sec. 323.4-4.

[79] Id. sec. 323.4-1.

[80] Id. sec. 323.4-2.

[81] Id. sec. 323.4-3.

[82] See text at n. 35 supra.

[83] 33 C.F.R. 323.4-4 (1980).

[84] Id. sec. 320.4(b)(1).

[85] Id. sec. 320.4(b)(2).

[86] Id. sec. 320.4(b)(4).

[87] Id. sec. 320.4(a)(2).

[88] CWA supra n. 37 at 33 U.S.C.A. 1344(b) (1978).

[89] Id. sec. 1344(c).

[90] "Environmental Protection Agency Interim Regulations on Discharge of Dredged or Fill Material into Navigable Waters," 40 F.R. 41293 (1975), now 40 C.F.R. 230 (1980).

[91] Id. at 40 C.F.R. 230.1(b)(2).

[92] Id. sec. 230.4-1(a)(1).

[93] Id. sec. 230.5(b)(8).

[94] CWA supra n. 37 at 33 U.S.C.A. 1344(b)(2) (1978).

[95] Id. sec. 1344(c).

[96] NEPA supra n. 18.

[97] Id. sec. 4332(c) (1977).

[98] 33 C.F.R. 209.410 (1980).

[99] Id. sec. 209.410(d)(2)(ii).

[100] Id. sec. 209.410(f).

[101] FWCA supra n. 11.

[102] Endangered Species Act of 1973, 16 U.S.C.A. 1531 et seq. (1974 and Supp. 1980).

[103] FWCA supra n. 11, sec. 661 (1974).

[104] Id. sec. 662.

[105] 33 C.F.R. 320.4(c) (1980).

[106] Memorandum supra n. 13.

[107] ESA supra n. 102 at sec. 1536 (Supp. 1980).

[108] Id. sec. 1536(a)(2).

[109] Id. sec. 1536(e-q).

[110] National Historic Preservation Act of 1966, 16 U.S.C.A. 470 et seq. (1974 and Supp. 1980).

[111] Id. sec. 470(f) (Supp. 1980).

[112] 16 U.S.C.A. 469 et seq. (1974 and Supp. 1980).

[113] Id. sec. 469a-2 (1974).

[114] Wild and Scenic Rivers Act, 16 U.S.C.A. 1271 et seq. (1974 and Supp. 1980).

[115] Id. sec. 1278 (Supp. 1980).

[116] 33 C.F.R. 320 et seq. (1980).

[117] Id. sec. 320.4(j)(4).

[118] Id.

[119] Id. 320.4(j)(6).

[120] Id. 320.4(j)(3).

[121] CZMA supra n. 41.

[122] Id. sec. 1456(c) (1974 and Supp. 1980).

[123] Virginia coastal resources planning is discussed later in this report.

[124] OCSLA supra n. 55 at 43 U.S.C.A. 1340(c)(2) (Supp. 1980).

[125] DPA supra n. 55 at 33 U.S.C.A. 1508 (1978).

[126] CZMA supra n. 41 at 16 U.S.C.A. 1456a (Supp. 1980).

[127] Office of Management and Budget, "Circular No. A-95 Revised" (1976).

[128] Letter from Governor Mills E. Godwin to T. Edward Temple, Nov. 24, 1969. The letter refers to the Division of State Planning and Community Affairs which has subsequently been abolished and its authority in the "A-95" process transferred to the Department. The Department has been abolished by legislation effective July 1, 1982 (Va. Acts of Assembly, ch. 315 (1981)).

[129] Office of Management and Budget supra n. 127.

[130] Id. Attachment D.

[131] CWA supra n. 37 at 33 U.S.C.A. 1341 (1978).

[132] Id. sec. 1341(a)(2).

[133] Executive Order supra n. 23 at sec. 2(a)(2).

[134] NFLA supra n. 20 at 42 U.S.C.A. 4012 (1977).

[135] FDPA supra n. 21 at 42 U.S.C.A. 4012a (1977).

[136] Miller v. Commonwealth, 159 Va. 924, 166 S.E. 557 (1932).

[137] Newport News Shipbuilding and Dry Dock Co. v. Jones, 105 Va. 503, 54 S.E. 314 (1906).

[138] Va. Acts of Assembly, ch. 333, secs. 6-10 (1872).

[139] Id. ch. 600 (1960), now Va. Code Ann. sec. 62.1-3 (Supp. 1980).

[140] Id. ch. 866 (1972), now Va. Code Ann. sec. 62.1-3 (Supp. 1980).

[141] Id. p. 26 (1927), now Va. Code Ann. sec. 15.1-427 et seq. (1981).

[142] Id. ch. 641 (1975), ch. 650 (1976), and ch. 228 (1977) now Va. Code Ann. sec. 15.1-446.1 (Supp. 1980).

[143] Id. H.J.R. no. 59, p. 1592 (1966).

[144] Id. at 1593.

[145] Id.

[146] "Marine Resources of Virginia--Their Use, Conservation and Development: Report of the Virginia Marine Resources Study Commission," House Doc. no. 19, Va. House and Senate Documents (1967) at 13.

[147] Id. at 14.

[148] Va. Acts of Assembly, H.J.R. no. 69, p. 1577 (1968).

[149] M. Wass and T. Wright, "Coastal Wetlands of Virginia," Virginia Institute of Marine Sciences (1969).

[150] Id. at vii.

[151] D. Brion, "Virginia Natural Resources Law and the New Virginia Wetlands Act," 30 Washington and Lee Law Review 19 at 43-44 (1973).

[152] Va. Acts of Assembly, H.J.R. no. 60, p. 553 (1971).

[153] Id. at 554.

[154] Id.

[155] "Protection of Virginia's Wetlands: Report of the Wetlands Study Commission to the Governor and the General Assembly of Virginia," House Doc. no. 14, Va. House and Senate Documents (1972).

[156] Brion supra note 151 at 45.

[157] Va. Acts of Assembly, ch. 711 (1972), now Virginia Wetlands Act, Va. Code Ann. sec. 62.1-13.1 et seq. (1973 and Supp. 1980).

[158] See text at n. 133 supra.

[159] Va. Acts of Assembly, ch. 23 (1973), now Va. Code Ann. sec. 62.1-3 (Supp. 1979).

[160] Virginia General Assembly, SB 222, HB 203, HB 205 (1980).

[161] Id. SB 222.

[162] "Report of the Virginia Coastal Study Commission to the Governor and the General Assembly of Virginia," Senate Doc. no. 19, Va. House and Senate Documents, Vol. 3, appendix (1977).

[163] Va. Acts of Assembly, S.J.R. no. 137, p. 1543 (1975).

[164] Id. S.J.R. no. 39, p. 1502 (1976).

[165] Report supra n. 162.

[166] Va. Acts of Assembly, S.J.R. no. 122, p. 1599 (1977).

[167] "Report of the Virginia Coastal Study Commission to the Governor and the General Assembly of Virginia," Senate Doc. no. 30, Va. House and Senate Documents, Vol. 1 (1978) at 10.

[168] Id. at 21.

[169] Id. appendix I at 32.

[170] Id. at 29.

[171] Id. appendix V at 63.

[172] Va. Acts of Assembly, S.J.R. no. 63 at 2032 (1978).

[173] Letter to Maurice B. Rowe, Virginia Secretary of Commerce and Resources, from William Matuszeski, Director, Office of Coastal Zone Management Program and Ann Terbush, NOAA Grants Officer, March 16, 1979.

[174] Va. Council on the Environment, "Plan for the Coordination of Coastal Resource Management Activities" (draft no. 4) (1979).

[175] Id. at 4.

[176] Id. at 8-13.

[177] Va. Acts of Assembly, S.J.R. no. 101 at 2043 (1978).

[178] "An Agreement Between the Governors of the Commonwealth of Virginia and the State of Maryland Concerning Management of the Resources and Activities of the Chesapeake Bay and Coastal Areas."

[179] Coastal Primary Sand Dune Protection Act, Va. Acts of Assembly, ch. 660 (1980), now Va. Code Ann. sec. 62.1-13.21 et seq. (Supp. 1980).

[180] VWA supra n. 157 at Va. Code Ann. sec. 62.1-13.1 (1973).

[181] Id. sec. 62.1-13.2(f,j,k) (Supp. 1980).

[182] Id. sec. 62.1-13.2(f).

[183] Id. sec. 62.1-13.5(3).

[184] Id. sec. 62.1-13.20.

[185] Id. sec. 62.1-13.3 (1973).

[186] Id. sec. 62.1-13.6 (Supp. 1980).

[187] Personal communication from Norm Larson, Assistant Commissioner for Environmental Affairs, Virginia Marine Resources Commission, Dec. 27, 1979.

[188] VWA supra n. 157 at Va. Code Ann. sec. 62.1-13.5(4-7) (Supp. 1980).

[189] Id. sec. 62.1-13.5(9)(b).

[190] Id. sec. 62.1-13.5(8,9(a)).

[191] CPSDPA supra n. 179.

[192] See Va. Code Ann. sec. 28.1-1 et seq. (1979 and Supp. 1980).

[193] See Id. at sec. 28.1-195 et seq. (Supp. 1980).

[194] VWA supra n. 157 at Va. Code Ann. sec. 62.1-13.4 (1973).

[195] Va. Marine Resources Commission, "Wetlands Guidelines" (1974).

[196] VWA supra n. 157 at Va. Code Ann. sec. 62.1-13.11 (1973).

[197] Id. sec. 62.1-13.11(4).

[198] Id. sec. 62.1-13.13 (Supp. 1980).

[199] Id. sec. 62.1-13.9 (1973).

[200] In addition to compliance with provisions of VWA, an applicant desiring to use state-owned wetlands is subject to the provision of Va. Code Ann. 62.1-3 (Supp. 1980), which is discussed later in this report.

[201] Personal communication supra n. 177. Efforts have been initiated to remove Fairfax County and the City of Falls Church from the jurisdiction of VWA.

[202] VWA supra n. 157 at Va. Code Ann. sec. 62.1-13.15 (1973).

[203] CPSDPA supra n. 179.

[204] Va. Code Ann. sec. 15.1-427 et seq. (1973 and Supp. 1980).

[205] Id. sec. 15.1-446.1 (Supp. 1980).

[206] Id. sec. 15.1-446.1(1).

[207] Id. sec. 15.1-486 et seq. (1973 and Supp. 1980).

[208] Id. sec. 15.1-490 (Supp. 1980).

[209] Id. sec. 62.1-3 (Supp. 1980).

[210] Id.

[211] Id. sec. 10-17.107 et seq. (1978).

[212] Id. sec. 10-17.107(b).

[213] Id. sec. 10-17.110.

[214] Id. sec. 10-167 et seq. (1978).

[215] Id. sec. 10-174.

[216] Id. sec. 10-150.1 et seq. (1978).

[217] Id. sec. 10-150.4 and 10-150.5.

[218] Id. sec. 10-150.7.

[219] Id. sec. 15.1-1410 (1973).

[220] Flood Damage Reduction Act, Va. Code Ann. sec. 62.1-44.108 et seq. (Supp. 1980).

[221] "Uniform Statewide Building Code," incorporating the BOCA Basic Building Code (1975 and Supp. 1978).

[222] FDRA supra n. 220 at sec. 62.1-44.109.

[223] USBC supra n. 221 at sec. 872.6 (Supp. 1978).

[224] See text at n. 136 supra.

[225] U.S. Constitution, Art. I, sec. 8, cl. 3.

[226] Martin v. Waddell 41 U.S. (16 Pet.) 367 (1842).

[227] Submerged Lands Act, Act of May 22, 1953, ch. 65, title I, sec. 2, 67 Stat. 29, now 43 U.S.C.A. 1301 et seq. (1964 and Supp. 1980) at sec. 1312 (1964).

[228] Executive Order 11990, 42 F.R. 26961 (May 24, 1977).

[229] Charlton Ogburn, "Island, Prairie, Marsh, and Shore," 155 National Geographic 350 (Mar. 1979) at 354-55.

[230] Bean supra n. 12 at 26.

[231] Migratory Bird Treaty Act, Act of July 3, 1918, ch. 128, 40 Stat. 755, now 16 U.S.C.A. 703 et seq. (1974 and Supp. 1980).

[232] Migratory Bird Conservation Act, Act of Feb. 18, 1929, ch. 257, 45 Stat. 1222 now 16 U.S.C.A. 715 et seq. (1974 and Supp. 1980).

[233] Migratory Bird Hunting Stamp Act, Act of Mar. 16, 1934, ch. 71, 48 Stat. 452, now 16 U.S.C.A. 718 et seq. (1974 and Supp. 1980).

[234] Bean supra n. 12 at 235.

[235] Wetlands Loan Act, P.L. 87-383, Oct. 4, 1961, 75 Stat. 813, now 16 U.S.C.A. 715 k-3 (Supp. 1980).

[236] Wetlands Loan Extension Act, P.L. 94-215, sec. 2(a), Feb. 17, 1976, 90 Stat. 189, major provisions now 16 U.S.C.A. 715 k-3 (Supp. 1980).

[237] P.L. 94-215, sec. 3(a), Feb. 17, 1976, 90 Stat. 189, now 16 U.S.C.A. 718a (Supp. 1980).

[238] Refuge Recreation Act, P.L. 87-714, Sept. 28, 1962, 76 Stat. 653, now 16 U.S.C.A. 460k et seq. (1974 and Supp. 1980).

[239] Fish and Wildlife Act, Act of Aug. 8, 1956, ch. 1036, 70 Stat. 1119, now 16 U.S.C.A. 742a et seq. (1974 and Supp. 1980).

[240] P.L. 85-624, sec. 2, Aug. 12, 1958, 72 Stat. 564, now included in 16 U.S.C.A. 662 (1974).

[241] FWCA supra n. 11.

[242] National Wildlife Refuge System Administration Act, P.L. 89-669, secs. 4 and 5, Oct. 15, 1966, 80 Stat. 927, now 16 U.S.C.A. 668dd and 668ee (1974 and Supp. 1980).

[243] Pittman-Robertson Act, Act of Sept. 2, 1937, ch. 899, 50 Stat. 917, now 16 U.S.C.A. 666 et seq. (1974 and Supp. 1980).

[244] Dingell-Johnson Act, Act of Aug. 9, 1950, ch. 658, 64 Stat. 430, now 16 U.S.C.A. 777 et seq. (1974 and Supp. 1980).

[245] Land and Water Conservation Fund Act, P.L. 880578, title I, Sept. 3, 1964, 78 Stat. 897, now 16 U.S.C.A. 460L-4 et seq. (1974 and Supp. 1980).

[246] Endangered Species Preservation Act, P.L. 89-669, Oct. 15, 1966, 80 Stat. 926.

[247] Endangered Species Act, P.L. 93-205, sec. 2, Dec. 28, 1973, 87 Stat. 884, now 16 U.S.C.A. 1531 et seq. (1974 and Supp. 1980).

[248] See, e.g., Code of Va., ch. 130, sec. 3305(1) et seq. (1930).

[249] Virginia Commission of Game and Inland Fisheries, "Wildlife Management Areas Owned by the Virginia Commission of Game and Inland Fisheries" (1971).

[250] See, e.g., Act of Mar. 1, 1872, ch. 24, sec. 1, 17 Stat. 32, now 16 U.S.C.A. 21 et seq. (1974) creating Yellowstone National Park.

[251] Antiquities Act, Act of June 8, 1906, ch. 3060, sec. 2, 34 Stat. 225, now 16 U.S.C.A. 431 et seq. (1974 and Supp. 1980).

[252] Act of Aug. 25, 1916, ch. 408, sec. 1, 39 Stat. 535, now 16 U.S.C.A. 1 et seq. (1974 and Supp. 1980).

[253] Act of Aug. 8, 1953, ch. 384, sec. 2, 67 Stat. 496, now included in 16 U.S.C.A. 1 et seq. (1974 and Supp. 1980).

[254] P.L. 91-383, sec. 1, Aug. 18, 1970, 84 Stat. 825, now included in 16 U.S.C.A. 1 et seq. (1974 and Supp. 1980).

[255] Act of Aug. 17, 1937, ch. 687, sec. 1, 50 Stat. 669, now 16 U.S.C.A. 459 et seq. (1974).

[256] See, e.g., Id. 16 U.S.C.A. 459a-2.

[257] P.L. 89-195, sec. 1, Sept. 21, 1965, 79 Stat. 824, now 16 U.S.C.A. 459f et seq. (1974 and Supp. 1980).

[258] Supra n. 245.

[259] Housing and Community Development Act, P.L. 93-383, title I, sec. 101, Aug. 22, 1974, 88 Stat. 633, now 42 U.S.C.A. 5301 et seq. (1977 and Supp. 1980).

[260] Federal Water Project Recreation Act, P.L. 89-72, July 9, 1965, 79 Stat. 213, now 16 U.S.C.A. 460L-12 et seq. (1974 and Supp. 1980).

[261] Va. Acts of Assembly, pp. 307, 312 (1926), now Va. Code Ann. sec. 10-18 et seq. (1978 and Supp. 1980).

[262] Va. Acts of Assembly, ch. 277 (1964).

[263] Virginia Outdoor Recreation Study Commission, "Virginia's Common Wealth," (1965).

[264] Va. Acts of Assembly, ch. 176 (1966), now Va. Code Ann. sec. 10-21.4 et seq. (1978 and Supp. 1980).

[265] Open-Space Land Act, Id. ch. 461, now Va. Code Ann. sec. 10-151 et seq. (1978).

[266] P.L. 90-454, sec. 1, Aug. 3, 1968, 82 Stat. 625, now 16 U.S.C.A. 1221 et seq. (1974).

[267] CZMA supra n. 41, now 16 U.S.C.A. 1461 (Supp. 1980).

[268] P.L. 94-370, sec. 7, 12, July 26, 1976, 90 Stat. 1019, 1030, now 16 U.S.C.A. 1461 (Supp. 1980).

[269] Marine Protection Research and Sanctuaries Act, P.L. 92-532, title III, sec. 301, Oct. 23, 1972, 86 Stat. 1061, now 16 U.S.C.A. 1431 et seq. (1974 and Supp. 1980) and 33 U.S.C.A. 1401 et seq. (1978).

[270] Water Bank Act, P.L. 91-559, sec. 2, Dec. 19, 1970, 84 Stat. 1468, now 16 U.S.C.A. 1301 et seq. (1974 and Supp. 1980).

[271] P.L. 96-182, secs. 1 and 2, Jan. 2, 1980, 93 Stat. 1317, now included in 16 U.S.C.A. 1301 et seq. (1974 and Supp. 1980).

[272] P.L. 93-86, sec. 1(28), Aug. 10, 1973, 87 Stat. 241, now 16 U.S.C.A. 1501 et seq. (1974 and Supp. 1980).

[273] Wilderness Act, P.L. 88-577, sec. 2, Sept. 3, 1964, 78 Stat. 890, now 16 U.S.C.A. 1131 et seq. (1974 and Supp. 1980).

[274] WSRA supra n. 114, originially enacted as P.L. 90-542, sec. 1(b), Oct. 2, 1968, 82 Stat. 906.

[275] NFIA supra n. 20 now 42 U.S.C.A. 4103 (Supp. 1980).

[276] Water Resources Development Act of 1974, P.L. 93-251, title I, sec. 73, Mar. 7, 1974, 88 Stat. 32, now 33 U.S.C.A. 701b-1 (Supp. 1980).

[277] Water Resources Development Act of 1976, P.L. 94-587, sec. 150, Oct. 22, 1976, 90 Stat. 2931, now 42 U.S.C.A. 1962d-5e (Supp. Pamp. 1974 to 1979).

[278] Executive Order 11990 supra n. 228 at sec. 1(a).

[279] Id. sec. 2(a).

[280] Id. sec. 4.

[281] VWA supra n. 157 at Va. Code Ann. sec. 62.1-13.1 (1973).

[282] Id. sec. 62.1-13.5(3)(c) (Supp. 1980).

[283] Va. Code Ann. sec. 62.1-2 (1973).

[284] SLA supra n. 227 at 43 U.S.C.A. 1312 (1964).

[285] Pursuant to Va. Code Ann. sec. 62.1-3 et seq. (1973 and Supp. 1980).

[286] Va. Code Ann. sec. 62.1-3 (Supp. 1980).

[287] Id.

[288] For example, the land acquisition authority of the Division of State Parks can be employed to preserve unique natural environments.

[289] See, P. Noonan, "Comment--The Virginia Coast Reserve: Acquisition Strategies for Coastal Zone Preservation, 3 Coastal Zone Management Journal 405 (1977).

[290] See "National Wetlands Newsletter," (Mar. 1979).

[291] CZMA supra n. 41 at 16 U.S.C.A. 1461 (Supp. 1980).

[292] National Oceanic and Atmospheric Administration, "Estuarine Sanctuary Guidelines," 15 C.F.R. 921 (1980).

[293] Id. sec. 921.4(a)(2,3).

[294] CZMA supra n. 41 at 16 U.S.C.A. 1455(c)(9) (1974).

[295] Id. sec. 1454(b)(3) (Supp. 1980).

[296] National Oceanic and Atmospheric Administration, "Coastal Zone Management Program Development Grants," 15 C.F.R. 920 (1980).

[297] Id. sec. 920.13(a).

[298] MPRSA supra n. 269 at 16 U.S.C.A. 1432 (1974).

[299] National Oceanic and Atmospheric Administration, "Marine Sanctuaries," 15 C.F.R. 922 (1980) at sec. 922.21.

[300] MPRSA supra n. 269 at 16 U.S.C.A. 1432(f) (1974).

[301] Id. sec. 1433(a).

[302] NOAA supra n. 299 at sec. 922.1(d) (1980).

[303] See text at n. 114 supra.

[304] WSRA supra n. 114 at 16 U.S.C.A. 1277 (1974 and Supp. 1980).

[305] WA supra n. 273 at 16 U.S.C.A. 1131 (1974).

[306] Id. sec. 1134(c).

[307] Id. sec. 1132 (1974 and Supp. 1980).

[308] Id. sec. 1131(c) (1974).

[309] Id. sec. 1132 (1974 and Supp. 1980).

[310] WBA supra n. 270 at 16 U.S.C.A. 1303 (1974).

[311] Id. at sec. 1302 (Supp. 1980).

[312] 3 U.S. Code Cong. and Adm. News 2781 (1979).

[313] 16 U.S.C.A. 1501 et seq. (1974 and Supp. 1980).

[314] Id. sec. 1501 (1974).

[315] WRDA of 1974 supra n. 276 at 33 U.S.C.A. 701b-11 (Supp. 1980).

[316] NFIA supra n. 20 as amended by FDPA supra n. 21 at 42 U.S.C.A. 4103 (Supp. 1980). This authority was transfered to FEMA by Reorganization Plan No. 3 of 1978 and Executive Order 12127 and 11988 supra n. 22.

[317] WRDA of 1976 supra n. 277 at 42 U.S.C.A. 1962d-5e (Supp. Pamp. 1974 to 1979).

[318] Created by NWRSAA supra n. 242.

[319] MBCA supra n. 232 at 16 U.S.C.A. 715d (Supp. 1980).

[320] Id. sec. 715a.

[321] Id. sec. 715f (1974).

[322] FWA supra n. 239 at 16 U.S.C.A. 742b(b) (1974).

[323] Id. sec. 742f(4) (Supp. 1980).

[324] FWCA supra n. 11 at 16 U.S.C.A. 663(c) (1974).

[325] RRA supra n. 238 at 16 U.S.C.A. 460k-1 (1974).

[326] ESA supra n. 247 at 16 U.S.C.A. 1534 (1974 and Supp. 1980).

[327] FWPRA supra n. 260 at 16 U.S.C.A. 460L-12 (1974).

[328] Id. sec. 460L-14.

[329] MBHSA supra n. 233 at 16 U.S.C.A. 718a (Supp. 1980).

[330] Id. sec. 718d (1974 and Supp. 1980).

[331] WLA supra n. 235 and WLEA supra n. 236 at 16 U.S.C.A. 715k-3 (Supp. 1980).

[332] PRA supra n. 243 at 16 U.S.C.A. 669a (1974).

[333] Internal Revenue Code, 26 U.S.C.A. 4181 (1980).

[334] Id. sec. 4161(b) (1980).

[335] PRA supra n. 243 at 16 U.S.C.A. 669C (Supp. 1980).

[336] Id. sec. 669e (1974).

[337] Id. sec. 669.

[338] Va. Code Ann. sec. 29-2 (1979).

[339] DJA supra n. 244 at 16 U.S.C.A. 777a(d) (1974).

[340] Internal Revenue Code, 26 U.S.C.A. 4161a (1980).

[341] DJA supra n. 244 at 16 U.S.C.A. 777 (1974).

[342] Va. Code Ann. sec. 29-1.1 (1979).

[343] LWCFA supra n. 245 at 16 U.S.C.A. 460L-9 (Supp. 1980).

[344] Va. Code Ann. sec. 29-11 (Supp. 1980).

[345] VCGIF supra n. 249.

[346] FWPRA supra n. 260.

[347] See 16 U.S.C.A. 21 et seq. (1974 and Supp. 1980).

[348] AA supra n. 251.

[349] See, e.g., 16 U.S.C.A. 431a (1974).

[350] See, e.g., 16 U.S.C.A. 450qq-4 (1974 and Supp. 1980).

[351] 16 U.S.C.A. 459f-5 (1974).

[352] See text at n. 343 supra.

[353] LWCFA supra n. 245 at 16 U.S.C.A. 460L-5 (Supp. 1980).

[354] Id. sec. 460L-7.

[355] Id. sec. 460L-9.

[356] Id. sec. 460L-7(c-e).

[357] Va. Code Ann. sec. 10-21.4 et seq. (1978 and Supp. 1980).

[358] Id. secs. 10-21.8(h) and 10-21.9(e) (1978).

[359] Id. sec. 10-18 et seq. (1978).

[360] Id. sec. 10-21(i).

[361] HCDA supra n. 259 at 42 U.S.C.A. 5305(a)(1)(C) (1977).

[362] OSLA supra n. 265 at Va. Code Ann. sec. 10-156(a) (1978).

[363] Id. sec. 10-152.

[364] Id. sec. 10-156(c).

[365] See, Virginia Council on the Environment, Impact, "Coordinating CRM: New Management Approach is Developing" (Spring 1980) at 2-3.