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FEDERAL MINIMUMS: INSUFFICIENT TO SAVE THE BAY

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I. INTRODUCTION

In this era of deregulation, streamlining, and government reform, the voices of state government often ring out the philosophy of "no stricter than federal law" when discussing environmental initiatives. The argument that federal minimums can serve as a minimalistic, one-size-fits-all framework for environmental protection not only contradicts the same voices' arguments for flexibility and site-specific solutions, but also ignores the reality that federal minimums alone simply cannot and will not restore our waters, conserve our land, or protect our air.

Perhaps no single resource in this nation more effectively demonstrates the need for initiatives extending beyond federal minimums than the Chesapeake Bay. An estuary with a 64,000 square mile watershed, the Bay's main tributaries extend from New York through Pennsylvania and Maryland, into Washington, D.C. and Virginia. This beautiful and complex waterbody is an economic and environmental engine, driving substantial portions of the economies of its surrounding jurisdictions,[1] defining the quality of life for small businessmen, watermen,

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1. The Maryland Department of Economic and Employment Development valued the Chesapeake Bay at $678 billion (1987 dollars) to the economies of Maryland and Virginia. MD. DEP'T OF ECON. & EMPLOYMENT DEV., ECONOMIC IMPORTANCE OF THE CHESAPEAKE BAY (Mar. 14, 1989).

recreational boaters and fishermen, paper factory employees, and more.

The Chesapeake Bay has been the subject of substantial legislative and regulatory efforts designed to stem its continued degradation. These range from federal environmental laws like the Clean Water Act to local sediment and erosion control ordinances, which form an often confusing maze of laws and regulations. When considering the effectiveness of these various efforts, we often evaluate them from a process standpoint. For example, when evaluating a permit program, we look at the length of time it takes to process permit applications, the number of dischargers with or without permits, or the frequency and magnitude of enforcement actions. This process perspective is an incomplete one, for it ignores the underlying, substantive *raison d'etre* of the legislative or regulatory effort—in the case of our topic, environmental protection.

This does not mean that a process analysis is unimportant. Rather, such a process, to be complete, must correlate to the bottom line—the ability to affect protection, restoration, or other changes in the natural resource itself. Program scope, permits, sanctions, and incentives are of little value absent this correlation.

Therefore, we will use several living indicators to correlate the health of the Bay with the effectiveness of federal statutes and programs designed to protect it. The indicators we have chosen—wetlands, submerged aquatic vegetation, oysters, and fish—are essential natural resource constituents of the Chesapeake Bay. Using these indicators, we will examine the "State of the Bay"[2] and, we hope, awaken readers to recognize that should we continue to ignore the need for both specialized and

2. An analysis of the health of the Bay and an evaluation of its future is a complicated endeavor. Numerous publications attempt to paint a comprehensive picture of the Bay's health. The Chesapeake Bay Foundation's notable attempt, TURNING THE TIDE: SAVING THE CHESAPEAKE BAY, concludes with a "Report Card" on the condition of the Bay. This "Report Card," which serves as a guide to the health of the Bay, focuses on several indicators, including technical parameters (e.g., levels of phosphorous or dissolved oxygen) and living resource indicators (e.g., forest and blue crab populations). TOM HORTON & WILLIAM M. EICHBAUM, TURNING THE TIDE: SAVING THE CHESAPEAKE BAY, 289 app. A (1991).

comprehensive initiatives extending beyond federal minimums, we will risk losing the culture and history the Bay embodies and the environmental resources it sustains.

II. THE INDICATORS—WHAT THEY ARE, WHY THEY ARE IMPORTANT, AND THEIR STATUS

A. *Submerged Aquatic Vegetation*

One of the primary indicators of the health of the Chesapeake Bay is the presence, abundance, diversity, and health of submerged aquatic vegetation (SAV). This is due to its major role in the intricacies of the Bay's food web and its sensitivity to water quality.

SAV serves as a major source of food for waterfowl and provides habitat and nursery areas for many species of fish and invertebrates. The beds of SAV, with their numerous leaves and stems, provide cover for many small fish. Surfaces of plant blades and stems provide a substrate for the attachment of other plants and many small invertebrates, and the leaves and stems of these plants help baffle currents and wave energy while their roots bind the substrate, allowing sediment to settle out. Photosynthesis allows SAV to capture the sun's energy and produce simple sugars and an essential supply of oxygen, and its decomposition provides a major source of food for aquatic life.

Current Status

Declines in SAV extend to all reaches of the Bay, from tidal fresh to high salinity regions.[3] Severe declines in near shore areas conducive to juvenile fish habitat may well be a factor contributing to the decline of some fish populations.

Although there have been recent encouraging signs evidencing an increase in acreage (from approximately 38,000 acres to

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3. U.S. ENVTL. PROTECTION AGENCY, CHESAPEAKE BAY SUBMERGED AQUATIC VEGETATION HABITAT REQUIREMENTS AND RESTORATION TARGETS: A TECHNICAL SYNTHESIS 5 (Dec. 1992) [hereinafter SAV HABITAT REQUIREMENTS].

nearly 71,000 acres),[4] "SAV abundance still remains near its lowest level in recorded history."[5] Seventy-one thousand acres is but a mere twenty-eight percent of the historic estimates of 247,100 acres or more Bay wide.[6] Many of the returning beds have only one or two of the thirteen commonly reported species in areas that historically supported five or six species.[7] Less diverse beds do not provide the same level of habitat quality and are more susceptible to rapid changes than those with several plant varieties.

B. *Wetlands*

From tidal saltwater and freshwater coastal marshes, to bogs and wet meadows, to inland swamps and forests, the Chesapeake Bay watershed is laced with wetlands. Although they make up less than four percent of the acreage of the watershed,[8] these wetlands are essential ingredients to the biological, physical and chemical integrity of the Bay and its tributaries. Wetlands provide habitats for many plants and animals, including spawning and nursery areas for many fish species. They also provide food for small creatures which many commercially and recreationally valuable fish species consume. In addition, the majority of our threatened and endangered plant species and many endangered animals depend on wetlands for survival.

One of the most critical roles played by wetlands is as filters for improving water quality. Often located downslope and adjacent to agricultural fields and paved areas, wetlands intercept agricultural and urban runoff, cleansing it before it enters downstream lakes, rivers, and estuaries. Studies show that wetlands can remove nearly ninety percent of the sediment[9]

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4. This figure is for the years 1984 to 1990. Karl Blankenship, *Sowing the Seeds of Recovery: Bay's Vital Grasses are Making a Comeback*, BAY J., Sept. 1993, at 1, 6.

5. SAV HABITAT REQUIREMENTS, *supra* note 3 at 5.

6. *Id.* at 34.

7. *Id.* at 37.

8. THOMAS E. DAHL, U.S. DEP'T OF INTERIOR, WETLAND LOSSES IN THE US 1780'S TO 1980'S 6 (1990).

9. J.R. COOPER, et al., RIPARIAN AREAS AS A CONTROL OF NONPOINT POLLUTANTS, reprinted in WATERSHED RESEARCH PERSPECTIVES, at 166, 166 (David L. Correll ed.,

and over fifty percent of the nutrients[10] from agricultural runoff. A physical loss of wetlands thus decreases the natural buffering capacity of the Bay system.

Current Status

The Chesapeake Bay watershed has experienced substantial losses of wetlands. Since the 1780s, Virginia's wetland acres have decreased by approximately forty-two percent, Pennsylvania's by fifty-six percent, and Maryland's by seventy-three percent.[11] In spite of the existing federal, state and local preservation initiatives, in the last eight years, the collective losses of wetlands in the Bay watershed equal an area about the size of the entire District of Columbia.[12]

C. *Oysters*

Historically, people's love for the European oyster has been one of the Chesapeake region's main attractions. For the Chesapeake Bay itself, however, oysters play a much more important role than mere hors d'oeuvres. In addition to providing an economic base for a tradition of watermen extending back hundreds of years, oysters provide both vital habitat and water quality benefits for the Bay's ecosystem.

Oysters grow on the bottom of the Bay in bars which, if undisturbed, will form reefs. These bars and reefs provide habitat for bottom dwelling organisms as well as recreationally and commercially valuable fish species such as weakfish, croaker, and drum. Each oyster filters as much as fifty gallons of water a day, removing algae, sediment and other pollutants. Removal of these pollutants makes the water clearer so that sunlight can penetrate further. In addition, this filtering removes algae

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1986).

10. Richard Lowrance et al., *Riparian Forests as Nutrient Filters in Agricultural Watersheds*, 34 BIOSCIENCE 374.

11. DAHL, *supra* note 8, at 6.

12. RALPH W. TINER, ET AL., U.S. FISH & WILDLIFE SERVICE, RECENT WETLAND STATUS AND TRENDS IN THE CHESAPEAKE WATERSHED (1982 TO 1989): TECHNICAL REPORT 29 (1994).

before it decomposes, thereby preventing a reduction in oxygen which occurs during decomposition.

Current Status

Oyster abundance in the Chesapeake Bay has declined dramatically. Today, the population is less than one percent of its historic levels.[13] The situation is so grave that oysters are likely to become commercially, if not biologically extinct.[14] There are no more oyster reefs.[15] Rather, small mounds or relatively thin layers of shell are scattered over the Bay bottom, with unproductive beds often becoming silted over. This represents a major loss of an important habitat. In addition, where the oyster population in summer was once capable of filtering the Bay's entire water column from surface to bottom in an estimated three to six days, present stocks require an estimated 325 days.[16]

D. *Fish*

There are nearly 300 species of fish identified within the tidal portion of the Chesapeake Bay watershed. A conspicuous component of the Chesapeake Bay's natural resources, fish inhabit nearly every habitat in the Bay and play an integral role in the various levels of the Bay's food chain. Most abundant are the grazers (e.g., menhaden), consumers of zooplankton (e.g., anchovies and silversides) and bottom dwellers (e.g., hogchockers and white perch). In addition, there are generalized predators (e.g., striped bass) as well as those which consume mainly mollusks (e.g., drum and cownosed rays), other fish (e.g., bluefish), and crustaceans (e.g., the oyster toadfish).

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13. HORTON & EICHBAUM, *supra* note 2 at 28.

14. Although there was a recent increase in survival of oysters in Maryland in 1994, this change is attributed to climatic conditions and in no way signals a long term oyster recovery.

15. Victor S. Kennedy, *Eastern Oyster Crassostrea Virginia*, *in* HABITAT REQUIREMENTS FOR CHESAPEAKE BAY LIVING RESOURCES, at 3-1, 3-9 (Stephen L. Funderburk et al. eds., 1991).

16. *Id.* at 3-3.

Current Status

The overall status of current Chesapeake Bay fisheries is poor. A few species seem to be stable (e.g., summer flounder, menhaden, spot and red drum) while some species are showing improvement (e.g., white perch). The majority of species, however, are either declining or depleted (e.g., bluefish, weakfish, American shad, hickory shad, blueback herring, and Atlantic croaker).

There is one well-known improving trend—the striped bass, or rockfish. Traditionally, the striped bass has been a traditional major target of both commercial and recreational fishermen. Between the early 1970s and the late 1980s, total east coast harvests of striped bass (which consisted primarily of Chesapeake Bay stocks) declined by ninety percent from roughly ten million pounds per year to less than one million pounds per year.[17] Recently, however, spawning stock is recovering to the high levels seen in the 1960s and 1970s. In 1994, the Atlantic States Marine Fisheries Commission declared the striped bass fishery to be recovered.[18]

III. INDICATOR IMPACTS: WHAT ARE THE CAUSES OF THE PROBLEMS?

Our indicators thrive or wither as a result of many contributing factors. For example, the abundance and health of a fish population is influenced by habitat alteration, pollution levels, obstructions to migration, food availability, presence of diseases, natural mortality, harvesting intensity, and breeding conditions. Although it is sometimes easy to see and understand the effects of these factors (as when filling destroys a wetland or overharvesting depletes a fishery), the effects of other factors are sometimes more difficult and more complex to discern.

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17. William Richkus, et al., *Fisheries Assessment and Management Synthesis: Lessons for Chesapeake Bay*, *in* PERSPECTIVES ON CHESAPEAKE BAY, 1992: ADVANCES IN ESTUARINE SCIENCES, at 75, 87 (1992).

18. Lawrence Latane III, *Very Good Year for Virginia Rockfish*, RICHMOND TIMES-DISP., Sept. 23, 1994, at B4.

Three major contributing factors impacting the living resources of the Chesapeake Bay are nutrients, toxic substances, and sediments. Their impacts are among the more difficult and complex. The remainder of this paper will focus on them due to this complexity as well as their pervasive presence throughout the watershed.

A. *Nutrients*

Nutrients (e.g., phosphorus and nitrogen) are essential ingredients in the health of aquatic systems like the Bay. They support the growth of algae and other plants that form the lower levels of the food chain. However, excessive levels of nutrients from sources such as sewage treatment plants, lawns, and farms cause significant problems.

When present in excessive levels, nutrients fuel large masses (blooms) of algae growth which cloud the water. This prevents light from penetrating the water and has a direct impact on one of our indicators, SAV. Light is the major environmental factor directly controlling SAV distribution within the Bay's waters. Without light, SAV cannot survive. Excessive nutrients also promote the growth of algae and other organisms directly on the leaves of the SAV, further blocking light and limiting the plant's survival abilities.

The subsequent process of algal bloom decomposition consumes oxygen, causing hypoxia (little oxygen) or anoxia (no oxygen) within the Bay's waters. Eggs and larvae of many fish species, another of our indicators, die without enough oxygen. Unfortunately, eggs and larvae tend to be present in the spring, a time when the Bay is apt to have low oxygen levels. Moreover, reduced oxygen levels yield reductions in available habitat, impacting adult fish food sources. Adult oysters can withstand anoxia for days, but growth and reproduction impairment can occur.

The presence of excessive nutrients, and the resulting problems, are evident in many areas of the Bay's waters. In Virginia, alone, all the major tributaries to the Chesapeake Bay have

been designated as nutrient enriched in their tidal portions.[19] The results, on each tributary, are conditions detrimental to SAV growth in some areas and marginal conditions for fish survival in others.

B. *Toxic Substances*

Toxic substances enter the Bay from a variety of sources, including industrial facilities, sewage treatment plants, runoff from urban and agricultural land, atmospheric deposition, and maritime activities. The number of potentially toxic substances is enormous: there are approximately 65,000 chemicals already in commercial use in this country, and new ones are introduced at a rate of 1500 per year.[20]

Chesapeake Bay fish and shellfish are exposed to a wide variety of toxic contaminants. Each year toxic spills in the Chesapeake Bay cause immediate fish kills, but these episodic occurrences are not the only problem. On an ongoing basis, toxic substances cause other significant problems. In areas such as the Elizabeth, Patapsco, and Anacostia Rivers, often referred to as "toxic hot spots," fish display compromised immune systems, liver tumors, gill disease, cataracts, and kidney and skin lesions.[21] Toxic contaminants in these areas can also cause death. Repeated or long term exposure to even very low levels of some toxics can be just as hazardous. Studies of areas not considered "hot spots" show similar effects, and these areas may well be contributing to the population declines of fisheries and oysters.[22] Studies on oysters at the Virginia Institute of Marine Science, for example, show that greater exposure to

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19. *See* DEPARTMENT OF ENVTL. QUALITY, DISCUSSION PAPER: REDUCING NUTRIENTS IN VIRGINIA'S TOTAL TRIBUTARIES (1993).

20. Jolene Chinchilli, *The Toxics Threat, in* THE CHESAPEAKE CRISIS, TURNING THE TIDE at 8 (Chesapeake Bay Foundation ed., 1990).

21. S. Hartwell & S. Jordan, *Effects of Contaminants on Fish and Shellfish, in* HABITAT REQUIREMENTS FOR CHESAPEAKE BAY LIVING RESOURCES at 22-1 (Stephen L. Funderburk et al. eds., 1991).

22. D. Wright et al., *Low Level Effects of Toxic Chemicals on Chesapeake Bay Organisms, in* PERSPECTIVES ON CHESAPEAKE BAY 1992: ADVANCES IN ESTVARINE SCIENCES 45 (Chesapeake Bay Program ed., 1992).

toxins yield weaker immune systems and increased susceptibility to disease.[23]

In addition, the negative effects of toxins are influenced by a variety of environmental factors. For example, low oxygen content, a stress factor for fish and shellfish, can exacerbate toxic effects and can also increase the solubility and toxicity of some metals.

C. *Sediment*

Simply stated, sediment clouds water. This prevents light from reaching SAV, thereby slowing or stopping photosynthesis, SAV's means of growth and survival. Sediment in the water also reduces visibility, impacts many species' ability to feed, spawn, and reproduce, and damages fish gills.

Originating from construction sites, urbanized areas, agricultural fields, and natural erosion, sediments often carry with them metals, nutrients, oil, pesticides, and other potentially toxic substances. The accumulation of sediments smother living resource indicators like oysters. Even with an efficient filtering mechanism for tolerating the often intense sediment load in estuaries, oysters can be overwhelmed and buried by heavy sedimentation, resulting in death by suffocation resulting.

IV. THE FEDERAL ENVIRONMENTAL FRAMEWORK

Several overarching federal laws dominate the federal legal environmental framework which impacts the Chesapeake

23. Fu-lin Chu & R. Hale, *Environmental Stress = Disease Susceptibility?*, 24 MARINE RESOURCE BULL. 14 (1992).

Bay.[24] Though far from complete, the summaries below provide an overview of those federal statutes linked to our indicators.

A. *The Clean Water Act*

The statute with the greatest direct impact on the water quality of the Chesapeake Bay and its tributaries is the Clean Water Act.[25] Enacted in 1972 and amended in 1977 and 1987, the stated purpose of the Act is to rehabilitate and maintain the Nation's waters.[26] Waters which have significantly deteriorated are to be restored, and waters in good shape are to be maintained at their higher level of quality. The Act seeks to achieve this by achieving a "fishable and swimmable" standard for all waters,[27] achieving a zero discharge standard,[28] and immediately halting toxic discharges in toxic amounts.[29]

To do this, the Clean Water Act established a system which prohibits anyone from discharging pollutants into waterways "from a point source" without a permit. Called the National Pollutant Discharge Elimination System (NPDES), this program requires receipt of a permit approved by EPA or an authorized state agency prior to discharging pollutants.[30] When issued, the permit defines the levels of pollutants which may be discharged.[31]

Under the Clean Water Act and the NPDES program, there are three basic types of pollutants regulated under the pro-

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24. The myriad of federal laws which impact the environment and the Chesapeake Bay and its watershed are not going to be discussed in this paper. Certainly, federal statutes such as the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901-6992 (1988 & Supp. V 1993), Toxic Substances Control Act, 15 U.S.C. §§ 2601-2692 (1988 & Supp. V. 1993), and the Clean Air Act, 42 U.S.C. §§ 7401-7671q (1988 & Supp. V 1993), contribute to the protection of the Bay's water, air and land resources. The federal statutes selected for discussion are examples which have some of the most direct influence on the indicators selected for evaluation.

25. 33 U.S.C. §§ 1251-1387 (1988 & Supp. V 1993) [Federal Water Pollution Control Act].

26. 33 U.S.C. § 1251(a)(2) (1988).

27. *See*, e.g., 33 U.S.C. § 1312(a) (1988).

28. 33 U.S.C. § 1251(a)(1).

29. 33 U.S.C. § 1251(a)(3).

30. 33 U.S.C. § 1342(a)(1) (1988).

31. 33 U.S.C. § 1342(a)(2).

gram: conventional pollutants, non-conventional pollutants, and toxic substances.[32] Conventional pollutants include biochemical oxygen demand, fecal coliform, suspended solids, and pH. Non-conventional pollutants include any non-toxic pollutant which does not appear in the conventional pollutants list. Toxic substances are those pollutants which at certain quantities and concentrations are harmful to human or aquatic life.

Of primary importance to the life and health of the Bay is the other major permitting program of the Clean Water Act, Section 404.[33] Under this section, the Army Corps of Engineers issues permits for the discharge of dredged or fill materials into wetlands.[34] The Corps evaluates applications,[35] issues permits,[36] and enforces permit requirements.[37] The Corps organization is highly decentralized and program management is conducted semi-independently by the District Engineers in each Corps Division. The Virginia, Maryland and Pennsylvania portions of the Chesapeake Bay watershed are covered by the Norfolk District and the Baltimore District. EPA has oversight authority of the Corps' permitting activities and, under section 404(c),[38] can overturn the issuance of a section 404 permit.[39]

While many activities such as filling wetlands for residential or commercial buildings, placement of riprap, major road projects, and installation of breakwaters, are regulated by permit under section 404 and its corresponding federal regulations,[40] many other activities (which destroy wetlands and disrupt their functions) do not require a permit.[41] For example, normal

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32. 33 U.S.C. § 1311 (1988).
33. 33 U.S.C. § 1344 (1988).
34. 33 U.S.C. § 1344(a).
35. *Id.*
36. *Id.*
37. 33 U.S.C. § 1344(s)(1).
38. 33 U.S.C. § 1344(c) (1988).
39. This authority was successfully exerted by the EPA in order to prevent Chesapeake Bay wetland losses from reservoir construction in the Ware Creek dispute in James City County, Virginia. *See* Roy A. Hoagland et al., *Showdown at Ware Creek*, NAT'L WETLANDS NEWSL. (Environmental Law Institute), Jan.-Feb. 1991 at 10; Jean Watts & Roy Hoagland, *EPA Holds Firm*, NAT'L WETLANDS NEWSL. (Environmental Law Institute), Mar.-Apr. 1994, at 4.
40. 40 C.F.R. §§ 230.1-.80 (1994).
41. CHESAPEAKE BAY FOUNDATION, WETLANDS REGULATION & RESOURCE MANUAL

farming and forestry practices such as tilling and harvesting or the construction of farm or forestry roadways do not require a permit.[42] In addition, "other activities while not specifically exempted are covered under general permits."[43] These permits cover a specific activity which, according to Army Corps of Engineers conclusions, will have minimal environmental impact.[44]

In addition to the NPDES and section 404 permit programs, the Clean Water Act, in section 319,[45] establishes a strengthened standard for control of nonpoint source runoff, requiring nonpoint source reduction "to the maximum extent practicable."[46] Section 319 requires the governor of each state to submit a state assessment report and management programs to EPA for approval.[47] If the program is judged insufficient, the state has an opportunity to cure the deficiencies. If the state fails to develop an adequate program, it runs the risk of losing certain federal grant funding.

B. *Federal Agricultural Legislation and Programs*

Many voluntary programs exist under several federal agencies which address sediment control. Of these, one of the most important is the Agricultural Conservation Program[48] which provides cost-share money for farmers who implement soil conservation measures. It was not until Congress passed the 1985 Farm Bill[49] that the voluntary nature of the soil erosion control programs expanded to incorporate sanctions for causing excessive erosion or failing to control it.

Of the major federal agricultural legislation and programs, one of the most well-known is the "sodbuster" provisions of the

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FOR VIRGINIA 14 (2d ed. 1992).

42. *Id.*

43. *Id.*

44. *Id.*

45. 33 U.S.C. § 1329 (1988).

46. 33 U.S.C. § 1329(a)(1); *see also*, ROBERT W. ADLER ET AL., THE CLEAN WATER ACT 20 YEARS LATER (1993).

47. 33 U.S.C. § 1329(a).

48. 16 U.S.C. § 590(h)(1988).

49. Food Securities Act of 1985, Pub. L. No. 99-198, 99 Stat. 1504 (1985) (codified at 16 U.S.C. §§ 3801-3862 (1988).

1985 Farm Bill.[50] Under "sodbuster," those who farm on highly erodible land not previously in agricultural use are ineligible for United States Department of Agriculture funds absent implementation of a soil conservation plan. A conservation plan incorporates not only best management practices to control soil erosion but also a schedule of land use activities (eg, crop rotations).

The 1985 Farm Bill provided an additional tool for reduction of erosion: the creation of the conservation reserve program. The purpose of a conservation reserve is to remove highly erodible land from agricultural production. In return for nonuse of the land, the landowner or farmer receives technical assistance, rent payments to compensate for the removal of the land from production, and cost-sharing for implementation of necessary conservation measures. The creation of the Environmental Conservation Acreage Reserve Program[51] supplemented the conservation reserve program in the 1990 Farm Bill by combining it with a new wetlands conservation program. The wetlands reserve program also provides for the purchase of long-term easements on agricultural wetlands. A related wetlands preservation tool is the "swampbuster" provisions of the federal farm law. "Swampbuster" attempts to preserve wetlands by linking nonproduction on certain wetlands to United States Department of Agriculture funds.

C. *Federal Fisheries Legislation*

The Atlantic States Marine Fisheries Commission[52] (ASMFC) was created to coordinate management of migratory species in state waters from Maine to Florida. The Commission functions as the primary means for creating and adopting interstate management plans for fish species, many of which live in the Chesapeake Bay, that depend on state-controlled tidal habitats. Until recently, the Commission served only in an advisory capacity without the authority to compel individual states to

50. 16 U.S.C. § 1211 (1988).
51. 16 U.S.C. 3830 (1988 & Supp. III 1992).
52. 16 U.S.C. 5101-08 (1988 & Supp. V 1993).

adopt its management plans. However, the Commission now has federal enforcement authority.

In 1984, Congress acted to reverse the decline in striped bass population by passing the Atlantic Striped Bass Conservation Act.[53] The Act required states to follow the ASMFC's management plan or face a moratorium on harvesting striped bass. Congress in 1993 approved the Atlantic Coastal Fisheries Cooperative Management Act,[54] which extended federal enforcement authority to all ASMFC management plans.

V. THE FEDERAL OVERVIEW—THE FAILURES

Why, given a host of laws—including these federal statutes we just discussed—designed to reduce nutrients, control toxic discharges, and halt sedimentation, is the current status of our indicators for the most part declining? What the reduction in SAV species diversity and numbers, continued wetland losses, historic lows in oyster populations, and depleted fisheries tell us is that the Bay requires more attention.

The incompleteness of our federal laws play a major role in these problems. The minimum levels established by federal law simply are neither stringent enough nor specific enough to adequately protect the Chesapeake Bay's resources.

A. *Submerged Aquatic Vegetation*

There are no federal laws which directly protect and preserve these vital components of the Chesapeake Bay system. SAV preservation is not regulated by the Clean Water Act[55] or by any other federal law.

Indirectly, there are federal laws and regulations which, by addressing water quality issues, address SAV survival issues. As previously noted, the Clean Water Act's National Pollutant

53. 16 U.S.C. § 1851 (1988).

54. 16 U.S.C. §§ 5101-08 (1988 & Supp. V 1993).

55. *See supra* Part IV.A for a summary of relevant portions of the Clean Water Act.

Discharge Elimination System (NPDES) sets discharge levels for various pollutants from a point source. Limiting the amount of nutrients which enter the Bay and its tributaries affords some protection of SAV, since excess nutrients cause significant problems for SAV survival. Some of these permits include limits on nutrients from discharges. However, Virginia's federally approved NPDES program has no water quality standard for nitrogen and, thus, no permit limits. Nitrogen is a major contributor of excess nutrients to the Bay. Nutrients from nonpoint sources, addressed federally by section 319 of the Clean Water Act[56] and the various federal agricultural programs, continue to contribute the greatest amount of nutrient pollution to the Bay's waters.

There is also some protection of SAV provided by controlling sediment. Sediment clouds the water, decreasing SAV survival due to the absence of light. While federal agricultural programs help reduce sediment from farmland, no federal laws address sediment from residential and industrial construction. Erosion and sediment control laws governing the building of homes, offices, and shopping malls are almost exclusively state and local. Sediment from such sites, as well as agricultural activities, remain a major problem for SAV survival and other indicators. In fact, recent evaluations of federal agricultural initiatives conclude that low participation among farmers and ineffectiveness of soil conservation efforts will continue to cause problems for Bay water quality.[57]

B. *Wetlands*

The presence of the Clean Water Act's section 404 permitting program does deter wetlands destruction. An overwhelming majority (ninety-three percent) of surveyed wetland consultants recently agreed that their clients try to avoid impacts to

56. 33 U.S.C. § 1329 (1988).

57. CHESAPEAKE BAY PROGRAM, REPORT AND RECOMMENDATIONS OF THE NONPOINT SOURCE EVALUATION PANEL, CBP/TRS 56/91 at 2 (1990).

wetlands because of the permit program.[58] However, losses continue and the program displays serious flaws.

Unregulated wetland destruction is still common. Nearly forty percent of wetland consultants in Maryland, Pennsylvania, and Virginia believe that wetlands in their state "always" or "frequently" are "destroyed without anyone submitting a permit application to either state or federal authorities."[59] While the consultants were not asked about the reasons for these unregulated losses, weak enforcement of unpermitted violations likely plays a major role. In fact, even in permitting situations, enforcement is rare.[60] The General Accounting Office recently concluded that on a nationwide scale, the Corps generally focuses on the permit process rather than enforcement.[61]

If you add to this lack of enforcement the destruction occurring due to exemptions provided within the federal framework,[62] the use of general permits which authorize widespread individual and cumulative wetland losses[63] and the fact that approximately ninety-two percent of the permit applications requesting wetland destruction are granted,[64] the continual loss is understandable.

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58. This survey was conducted by the Chesapeake Bay Foundation. The survey sample was randomly selected, pursuant to established statistical methodology, and included consultants throughout the Maryland, Virginia and Pennsylvania portions of the Bay watershed. CHESAPEAKE BAY FOUNDATION, WETLANDS PERMITTING PROGRAMS IN THE CHESAPEAKE BAY AREA 20 (1994).

59. *Id.* at 19.

60. Fifty-five percent of consultants responded "seldom" or "never" when asked how frequently federal regulatory personnel "inspect construction sites of approved activities in nontidal wetlands to assess compliance with permit conditions." *Id.* at 44.

61. U.S. GENERAL ACCOUNTING OFFICE, WETLANDS PROTECTION: THE SCOPE OF THE SECTION 404 PROGRAM REMAINS UNCERTAIN, GAO/RCED-93-26 at 25 (1993).

62. For example, federal regulations provide for exemptions due to normal agricultural and silvicultural activities. *See* 40 CFR §§ 230.1-.80 (1994) (setting § 404(b)(1) guidelines).

63. Of the permit decisions made by the Corps of Engineers for the Chesapeake Bay Region between 1991 and 1993, over 80% of permit approvals were general permit issuances. CHESAPEAKE BAY FOUNDATION, *supra* note 60, at ii. While the Corps' revised general permit regulations now require some documentation of impacts and seem to encourage mitigation, these general permits continue to result in significant cumulative adverse impacts that are not carefully documented, reviewed, or mitigated.

64. *Id.* at A2.

Moreover, mitigation to date, has not replaced the permitted wetland losses. First, wetland creation or restoration is not always required as a condition for authorized wetland destruction.[65] Second, even when required, mitigation is often not successful in replacing the loss of existing natural wetland functions and values.[66] All too often, compliance with permit requirements for wetland replacement is neither monitored or enforced.[67]

C. *Fish*

Excessive nutrients, toxic substances, sediment, overfishing, and a host of other factors all impact upon the health of the Chesapeake's fisheries which, as previously discussed, are in poor shape. While our discussions on the relationships among federal laws and SAV focused on nutrients and sediment and our discussion on wetlands focused on filling, consideration of the relationship among federal laws and fisheries and oysters allows us to focus on toxic substances and overharvesting.

As noted earlier, fish suffer from exposure to toxic substances. Physical and reproductive abnormalities are recognized consequences of exposure. From a water quality perspective, the Clean Water Act is designed to play a primary role, regulating the discharges of various toxic substances into the waters of the Bay and its tributaries. Though limited by water quality standards and NPDES permit parameters, toxic substances still flow freely into our waters. In Virginia, industry discharged more than 1.89 million pounds of toxic contaminants into Virginia's waters in a single year.[68] Of the top ten contaminants with the greatest loading to the water, five have no wa-

65. Of the individual permits issued by the Baltimore and Norfolk Districts, only 12% required wetland replacement. *Id.* at A10.

66. Nearly half of the consultants surveyed (48%) say that current regulatory requirements always or frequently "lead to compensatory mitigation [i.e., wetland replacement] that has little environmental benefit." *Id.* at 41.

67. *Id.* at 41-42.

68. This figure underestimates the actual amount of toxic substances discharged because it does not include the large numbers of chemicals not required to be reported. *See* THE CHESAPEAKE BAY FOUNDATION, TOXICS RELEASE INVENTORY ANALYSIS 1987-1992 (1994).

ter quality standards under the federally approved Clean Water Act program for Virginia.

While the Clean Water Act provides for broad federal involvement in water quality protection, the federal government is not extensively involved in managing fisheries. The lack of fisheries management, and subsequent overharvesting, has had a major impact in the decline of Bay fisheries. However, federal involvement, beginning in 1984 with the protection of the striped bass, or rockfish, is an example of a dramatically successful federal program. This federal management plan[69] is credited with bringing the striped bass back from the brink of extinction as a recreational and commercial species to a recovered fish population. Congress recently adopted the Atlantic Coastal Fisheries Cooperative Management Act to provide federal enforcement of management plans for other migratory fish.[70]

D. *Oysters*

Like the protection of SAV, there are only indirect and inadequate federal statutory protections for the oyster. While federal laws designed to reduce nutrients, halt erosion, or save wetlands do assist in improving water quality and the habitat in which oysters survive, the current condition of this fishery, like the state of the SAV growth, is indicative of the clear inadequacy of these indirect protections.

Further, there are no federal management laws or regulations governing the harvest of the Chesapeake Bay oyster. Politically directed management of the Bay's oyster resources at the behest of the oyster harvesters has resulted in virtually unregulated over-harvesting, with overfishing playing an instrumental role in the historic decline of Chesapeake oysters.

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69. *See supra* part IV.C.
70. *Id.*

VI. CONCLUSION

As we approach the next century and pursue new initiatives to restore the Chesapeake Bay, we must do so with the recognition that federal laws, alone, are not sufficient to protect and restore the Bay. Not only do our indicators evidence the clear need for greater commitment, but the corresponding analysis of existing federal laws shows the inadequacy of the "no stricter than federal law" mentality in protecting the Bay.

Those committed to the restoration of the Chesapeake Bay have for more than ten years recognized the inadequacy of federal minimums. Since 1983, there has been a regional commitment to the Chesapeake Bay. With the federal government as a major partner, the executive branches of the governments of Maryland, Virginia, Pennsylvania, and Washington, D.C., executed in 1983 the first Chesapeake Bay Agreement.

This first Agreement acknowledged the decline of the Bay and established a cooperative approach to "fully address the extent and complexity, and sources of pollutants entering the Bay."[71] The 1987 Agreement and subsequent amendments and policies contain a wide range of objectives and commitments concerning Bay restoration.[72] Few of these commitments, however, are measurable. Two notable exceptions are a forty percent reduction in nutrients goal and a net resource gain in wetland acreage and function.

These goals, in particular the forty percent nutrient reduction goal, served as the impetus for several major federal and state initiatives. At the federal level, scientists developed one of the world's most sophisticated modeling systems for analysis of estuarine ebb and flow and nutrient impacts. At the state level, for example, Maryland,[73] Virginia[74] and Pennsylvania[75] adopted bans on the use of phosphates in laundry detergents;

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71. Chesapeake Bay Agreement, 1983 (on file with the *University of Richmond Law Review*).

72. Chesapeake Bay Agreement, 1987 (on file with the *University of Richmond Law Review*).

73. MD. CODE ANN., ENVIR. § 9-1503 (1993).

74. VA. CODE ANN. § 62.1-193.1 (Michie 1992).

75. 35 PA. CONS. STAT. ANN. §§ 722.1-722.9 (1993).

Pennsylvania developed nutrient management legislation for agriculture;[76] and Maryland[77] and Virginia[78] enacted land use laws designed to protect certain shoreline habitats and water quality, strengthening controls over land disturbance and sediment and erosion potential. Most recently, the states are in the process of developing nutrient reduction strategies for each major tributary in order to meet the forty percent reduction goal.

All of these initiatives recognize the inadequacy of a federal minimum philosophy. We should note that even with these additional, more restrictive initiatives, there remain real threats to the Bay's resources. Now is not the time to move backwards and accept a minimalist strategy; now is the time to move forward and continue strengthening our resolve and our initiatives so that we may truly save the Bay.

76. 3 PA. CONS. STAT. ANN. §§ 1701-1716 (Supp. 1995).
77. MD. CODE ANN., NAT. RES. §§ 8-1801 to -1816 (1990 & Supp. 1994).
78. VA. CODE ANN. §§ 10.1-2100 to -2116 (Michie 1993 & Supp. 1995).