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The Federal Strategy to Restore the Chesapeake Bay Watershed

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On May 12, 2010, the Federal Leadership Committee for the Chesapeake Bay released its strategy for protecting and restoring the Chesapeake Bay Watershed. Formed by Executive Order 13508, the Federal Leadership Committee includes the U.S. Environmental Protection Agency and the Departments of Agriculture, Commerce, Defense, Homeland Security, Interior and Transportation. The bay strategy is designed to fulfill the federal government's commitment to restore the Chesapeake Bay and to present a model for environmental protection and restoration efforts in other watersheds throughout the nation.

The Chesapeake Bay Watershed is the largest estuary in the nation. Falling within the jurisdiction of six states and the District of Columbia, the 64,000-square-mile watershed and its ecosystems provide benefits that support the economy and quality of life in the region.

Despite its regional and national importance, the bay watershed is seriously degraded. Eighty-nine of the 92 tidal segments are listed as impaired for the nutrients nitrogen and phosphorus and for sediment. Nutrients and sediment threaten sensitive ecological areas like wetlands and degrade the habitat of shellfish, fish and other aquatic organisms. Activities to mitigate the adverse impacts to the watershed over the past decades have largely been unsuccessful due in part to the cost of reducing loadings and the absence of sufficient political commitment.

In an effort to jump-start the stalled restoration process, on May 12, 2009, President Obama issued Executive Order 13508 to protect and restore the estuarine ecosystem and its watershed. The executive order established the Federal Leadership Committee, required analyses of and reports on key challenges facing the bay, and identified restoration strategic goals. The executive order placed the bay at the forefront of national restoration efforts.

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The bay strategy that the Federal Leadership Committee issued on May 12, 2010, is designed to implement the requirements of the executive order and a separate settlement that the EPA reached with the Chesapeake Bay Foundation and other parties in the U.S. District Court for the District of Columbia. The bay strategy sets forth a thoughtful, forward-looking approach to achieve ecosystem protection on a watershed basis by coordinating the tools and resources of various federal and state agencies and enlisting public participation.

The bay strategy establishes four key goal areas: restore clean water, recover habitat, sustain fish and wildlife, and conserve land and increase public access. Achieving these goals will require expanding citizen stewardship, developing environmental markets, responding to climate change, strengthening science and formulating an implementation program with transparency and accountability.

The federal government will undertake federal regulatory actions and apply its financial resources and technical skills. States will design and follow state watershed implementation plans and undertake state regulatory actions to achieve the goals. How well this collaborative effort succeeds may determine the nature of future restoration efforts throughout the country.

The first goal discussed in the bay strategy is restoring clean water. A combination of federal and state regulatory and voluntary steps are identified to achieve this goal. On the regulatory front, the EPA will establish the Bay Total Maximum Daily Load, or TMDL, by December. The TMDL will allocate loadings of nutrients and sediment to meet water quality standards for dissolved oxygen, clarity and chlorophyll-a in the bay and tidal tributaries. A significant effort, the bay TMDL will consist of different TMDLs for individual Chesapeake Bay tidal segments and will divide a "pollution diet" among all jurisdictions in the watershed. The states and the district will allocate the loading reductions among local sources and sectors.

EPA's regulations do not require a TMDL to include an implementation plan, but do require effluent limits in National Pollutant Discharge Elimination System, or NPDES, permits to be consistent with the requirements of the TMDL's wasteload allocations. In this case, however, the EPA has encouraged the bay states and the district to prepare watershed implementation plans. Each plan will include a description of the authorities, actions and in some cases control measures, and a schedule of actions to be taken, to achieve reductions from the major point sources including sewage treatment plants, urban stormwater systems and large animal operations.

Significantly, the plans will also contain a schedule of reductions to be realized from nonpoint sources such as agricultural lands, small towns and septic systems. Although the states are encouraged, not required, to design and implement such plans, the EPA will impose consequences if acceptable plans are not submitted. These consequences may include reducing

wasteload allocations, limiting new discharges or withholding federal funding. Thus, the bay strategy depends on the voluntary cooperation of the states, but employs a carrot and stick approach to encourage that cooperation and provide reasonable assurance that loading reductions will occur.

The bay strategy also requires the states to establish a series of two-year milestones for achieving pollution reduction actions, with all measures to be in place by 2025. By then, EPA expects that at least 60 percent of the 89 impaired tidal segments will be restored. In certain jurisdictions EPA expects regulations, permits or enforceable agreements to control major point and nonpoint sources. To ensure that permits contain the necessary limitations, EPA will be reviewing NPDES permits for significant point sources for consistency with water quality standards, the bay TMDL and the state watershed implementation plans. The watershed implementation plans may cover federal properties and involve federal commitments to reduce nitrogen, phosphorus and sediment on federal properties by specific dates. Alternatively, federal facilities or installations may develop federal facility implementation plans describing how the facilities will achieve the necessary load reductions.

EPA will also take steps to tighten the rules in two of its regulatory programs, control of Concentrated Animal Feeding Operations, or CAFOs, and Municipal Separate Storm Sewer Systems, or MS4s, to limit CAFO and MS4 nutrient and sediment discharges. The EPA initiated CAFO rulemaking in February 2010 and is considering expanding MS4 coverage to discharges from newly developed sites and existing development. In addition, EPA will use its Clean Air Act authority to reduce airborne sources of nitrogen from electric utilities, vehicles and other sources.

In addition to relying on federal regulatory authority and state implementation plans, the bay strategy proposes that reductions be achieved through use of offsets and market mechanisms, including an interstate trading system. In accordance with the 2008 Farm Bill, the U.S. Department of Agriculture is already supporting the participation of farmers, ranchers and forest owners in environmental markets. The bay strategy contemplates that these landowners will take actions that create credits for nutrients, sediment, habitat, carbon and wetlands.

The federal agencies and the bay states will develop the market infrastructure for measuring, reporting and verifying environmental performance. The bay TMDL, future EPA guidelines, improved models and data gathering, and U.S. Department of Agriculture actions will be coordinated and shaped to support this infrastructure. To create an incentive for credit purchases, where a source fails to meet its regulatory obligations through its own efforts or credits purchased by it, EPA will use its enforcement authorities.

The remaining three goals in the strategy are, in part, dependent on the water quality goal. To recover habitat and support species and ecosystem services, improvements in water quality are needed. Meaningful habitat restoration also requires an assessment of the vulnerability of coastal areas and wetlands to the impacts of climate change and sea level rise. In addition to vulnerability assessments, management strategies to recover wetlands include increasing federal review of permits that impact wetlands and providing incentives for mitigating loss of wetlands. The EPA aims to restore 30,000 acres of tidal and non-tidal wetlands and enhance the function of an additional 150,000 acres of degraded wetlands by 2025.

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Forested areas also form part of the bay watershed habitat in need of protection. The bay strategy considered the amount of forest in the watershed as the most important indicator of watershed health. Riparian forest buffers are particularly effective in reducing nutrient and sediment loss. Various tools such as habitat and forest mapping, integrated watershed planning, monitoring and studies will be used to determine the most effective forest restoration actions.

To achieve the third goal, sustaining fish and wildlife, the bay watershed must overcome challenges from water quality degradation, habitat loss, land use and urbanization, climate change and other human activities. According to the bay strategy, oyster populations are at less than 1 percent of their historic levels, and more than 5,000 miles of fish spawning habitat on bay tributaries are blocked by man-made obstructions.

The bay strategy identifies four species — oysters, blue crab, brook trout and black ducks — as indicators of bay habitat health. By promoting restoration of water quality and habitat, the strategy aims to increase the populations of these indicator species and other species.

Land conservation and increased public access constitute the final goal in the bay strategy. The Federal Leadership Committee ambitiously seeks to protect an additional 2 million acres of land by 2025, including 695,000 acres of forest land of highest value for maintaining water quality. The mechanisms to be used include launching a Chesapeake treasured landscape initiative, coordinating conservation funding, utilizing national park service partnership areas and other techniques. Public access will be achieved by adding 300 new public access sites by 2025 to the 761 already documented in the District, Maryland, Pennsylvania and Virginia alone.

The bay strategy is a comprehensive document that contains specific goals and tools. By using a watershed approach, employing adaptive management techniques and focusing on ecosystem services, the bay strategy creatively seeks to implement current management and restoration concepts through voluntary actions and statutory authorities that in some instances are decades old. Precisely how the anticipated 15-year restoration program will fit with regulations designed for more immediate compliance remains to be seen.

At a fundamental level, however, the success of the bay strategy will depend on the committed involvement of several federal agencies and state partners that cannot be easily compelled to implement the strategy. By setting forth a coherent vision, identifying specific steps and establishing a coordinated effort, the bay strategy may succeed where previous bay restoration efforts have failed. If successful, the bay strategy may serve as a model for similar restoration efforts throughout the country. •