



CHESAPEAKE BAY COMMISSION NOTE:
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MEMORANDUM

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SUBJECT Incorporation of Land Conservation into the Chesapeake Bay TMDL

What statutory, regulatory, or agency policies provide support for, or present obstacles to, incorporating land conservation into total maximum daily load ("TMDL") compliance? Additionally, can land conservation be used to offset prospective loadings?

Brief Answer

The Clean Water Act ("CWA"), the Chesapeake Bay TMDL, Executive Order 13,508, and guidance issued by the Environmental Protection Agency ("EPA") provide general support for reliance on land conservation to meet TMDL requirements. Land conservation is consistent with the goals and policies adopted in these authorities and could contribute significantly to water quality restoration goals in the Chesapeake Bay.

Additionally, the EPA's "reasonable assurance" standard provides the Agency with considerable discretion when determining whether a particular nonpoint source reduction strategy is likely to be met. Land conservation is a powerful tool to achieve water quality restoration goals and may provide reasonable assurance that nonpoint targets can be met in the Chesapeake Bay TMDL.

Finally, land conservation is likely to be an acceptable strategy for TMDL programs that are intended to offset prospective loadings. The EPA recognizes that there can be considerable flexibility in the development of offset programs. However, the Agency has set forth a number of "common elements" to be considered in the development and approval of offset programs. The two greatest

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obstacles to the development of a land conservation offset program are those which require credit calculation/verification and safeguards to assure performance. On the other hand, EPA's requirement of sustainability is readily met by a land conservation offset program in that conserved lands can be expected to produce credits as new and increased loadings occur.

I. Statutory and Regulatory Background

The development of TMDLs is a cooperative effort between individual states and the federal EPA, under the authority of the CWA. The EPA has promulgated regulations and issued guidance further clarifying this relationship and the process for developing a TMDL. The Chesapeake Bay TMDL, the largest and first ever Bay-wide TMDL, was developed pursuant to the CWA, EPA regulations, and guidance, as well as a number of agreements among Bay area jurisdictions and an executive order issued by President Barack Obama.

A. The Clean Water Act and Its Implementing Regulations

The CWA is a comprehensive environmental law designed to address the Nation's water quality problems. Over the years the EPA has used technology-based controls to address point source pollution successfully. These controls have been insufficient to address increased loading from nonpoint sources. In order to achieve pollutant reductions from both point and nonpoint sources, section 303(d), 33 U.S.C. § 1313(d), of the Act directs states to use water quality-based controls through the development of TMDL programs for impaired waters. Section 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A), of the CWA directs states to identify and rank waters for which technology-based controls alone are insufficient to implement applicable water quality standards. For waters identified under section 303(d)(1)(A), 33 U.S.C. § 1313(d)(1)(A), states are then required to establish total maximum daily loads "at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety." 33 U.S.C. § 1313(d)(1)(C).

The development and implementation of TMDL programs involves cooperation between states and the EPA. While states have the main responsibility for implementing water quality standards and developing the TMDL, the EPA maintains oversight authority and is ultimately responsible for ensuring that the requirements of the CWA are met. States are required to submit the TMDLs to the EPA, and then the Administrator "shall either approve or disapprove" the load within thirty days of submission. 33 U.S.C. § 1313(d)(2). If the Administrator disapproves the load, he "shall . . . establish such loads for such waters as he determines necessary to implement the water quality standards applicable to such waters." *Id.*

The EPA has developed a Water Quality Planning and Management Regulation, 40 C.F.R. § 130, linking various sections of the CWA "to form the water quality-based approach to protecting and cleaning up the nation's waters." EPA, *Guidance for Water Quality-Based Decisions: The TMDL Process* 9 (1991). Under the regulation, states must "establish a TMDL that quantifies pollutant sources and allocates allowable loads to the contributing point and nonpoint sources so that the water quality standards are attained for that water body." *Id.* at 14. In order to achieve the TMDL, the states and the EPA may implement point and nonpoint source controls. The national pollutant discharge elimination system ("NPDES") permit program, contained in section 402, 33 U.S.C. § 1342, of the CWA, is used to control pollution from point sources. In order to address pollution from nonpoint sources, states may require adoption of best management practices ("BMPs"), described in section 319, 33 U.S.C. § 1329, of the CWA.

B. Other Policies and Guidance Relating to the Chesapeake Bay

Water quality in the Chesapeake Bay has continuously declined, leading jurisdictions in the Bay area to develop a number of management agreements, and ultimately to the development of the Bay-wide TMDL. The Chesapeake Bay Agreement was formed in 1983 by Maryland, Virginia, Pennsylvania, Washington, D.C., and the EPA. *1983 Chesapeake Bay Agreement (1983)*, available at http://www.chesapeakebay.net/content/publications/cbp_12512.pdf. The Agreement acknowledged the decline in the Chesapeake Bay living resources and established the Chesapeake Executive Council to implement watershed improvement plans. *Id.* The 1983 signatories executed a new Chesapeake Bay Agreement in 1987, which set specific goals and commitments to restore water quality and living resources in the Bay. *1987 Chesapeake Bay Agreement (1987)*, available at http://www.chesapeakebay.net/content/publications/cbp_12510.pdf. The 1987 Agreement was incorporated into the CWA in 1987 in section 117, 33 U.S.C. § 1267, in which Congress authorized the formation and funding of the Chesapeake Bay Program. In 2000, the signatories joined the chairman of the Chesapeake Bay Commission in signing the Chesapeake 2000 Agreement, which provided a renewed commitment to the 1987 Agreement and provided specific goals and time commitments. Chesapeake Bay Program, *Chesapeake 2000 (2000)*, available at http://www.chesapeakebay.net/documents/cbp_12081.pdf. Among the goals central to the 1987 and 2000 Agreements are land conservation and stewardship.

Despite these efforts, water quality in the Bay has continued to decline. On May 12, 2009, President Barack Obama issued Executive Order Number 13,508 ("EO 13508"), declaring the Chesapeake Bay a "national treasure" and calling for "a renewed commitment to controlling pollution from all sources as well as protecting and restoring habitat and living resources, conserving lands, and improving management of natural resources." EO 13508, 74 Fed. Reg. 23,099 (May 12, 2009). The President stated that land conservation "contribute[s] to improved water quality and ecosystem health" and directed responsible agencies to develop a "Federal Strategy" to "conserve landscapes and ecosystems of the Chesapeake Bay watershed." *Id.* at 23,099-100. The Federal Strategy, developed by the EPA, the Department of the Interior, and the Department of Agriculture, among other Federal agencies, incorporates four main goals: restoration of clean water; recovery of habitat; sustainability of fish and wildlife; and conservation of land. Federal Leadership Committee for the Chesapeake Bay, *Strategy for Protecting and Restoring the Chesapeake Bay Watershed 75 (2010)* ("Federal Strategy").

In response to the growing need for a comprehensive Bay management strategy, the EPA, in conjunction with Bay jurisdictions, developed the Chesapeake Bay TMDL, the largest TMDL ever developed, addressing pollution reductions across Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and Washington, D.C. EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorous and Sediment (2010)* ("Chesapeake Bay TMDL"). In order to approve the TMDL, which allocates pollutant loads to both point and nonpoint sources, the EPA must determine whether there is "reasonable assurance" that the nonpoint source load allocations will be met. Chesapeake Bay TMDL, at 1-16. Reasonable assurance for the Chesapeake Bay TMDL is provided by an accountability framework which includes state watershed implementation programs ("WIPs"), two-year milestones, tracking and assessment, and federal actions when jurisdictions do not meet their commitments. *Id.* This accountability framework is designed to meet the requirements of section 117(g)(1), 33 U.S.C. § 1267(g)(1), of the CWA, which requires the EPA Administrator to "ensure that management plans are developed and implementation is begun by signatories to the

Chesapeake Bay Agreement to achieve and maintain" a number of water quality goals, including "habitat restoration, protection, creation, and enhancement goals . . . for wetlands, riparian forests, and other types of habitat associated with the Chesapeake Bay ecosystem." The EPA has worked with Bay area jurisdictions to develop WIPs, which detail how each jurisdiction will meet its pollutant allocations under the TMDL. Chesapeake Bay TMDL, at ES-8. There have been limited instances of land conservation in WIPs as a strategy to reduce nonpoint source pollution. For example, the Virginia Phase II WIP states: "With the obligation to meet nutrient and sediment loads contained in the Chesapeake Bay TMDL, Virginia has an opportunity to incorporate into the Phase II WIP strategies to slow or reverse the loss of forestland and the associated water quality benefits." Commonwealth of Virginia, *Chesapeake Bay TMDL Phase II Watershed Implementation Plan* 33 (2012). The WIP recognizes the "direct value that forests provide for water quality, with such ancillary benefits as water infiltration and storage, biodiversity, carbon sequestration, air quality, pollination, and others." *Id.* Among the potential conservation strategies Virginia plans to explore are "land conservation, forest preservation, and afforestation." *Id.*

Despite its limited use in current WIPs, land conservation in an offset program to account for prospective loadings is likely to have broader applicability. The Chesapeake Bay TMDL contemplates that Bay jurisdictions will account for new and increased loadings, in excess of current TMDL limits, through the use of offset programs. Chesapeake Bay TMDL, at 10-1. Offset programs allow responsible parties to generate loading credits, which can be sold or traded to generators producing new or increased loadings. *Id.* The offset program was developed pursuant to CWA sections 301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C), and 303(d), 33 U.S.C. § 1313(d), which require that effluent limits "be derived from and comply with all applicable [water quality standards] and be consistent with the assumptions and requirements of any available [wasteload allocations]," and section 117(g), 33 U.S.C. § 1267(g), which requires the EPA to ensure that management plans for the Chesapeake Bay are developed and implemented. *Id.* States have discretion to creatively develop offset programs, but the EPA maintains final approval authority and has listed a number of common elements to be considered in offset programs. *Id.* at S-2. These common elements include legal authority to authorize and enforce offsets, implementation of certain minimum controls by the credit user (so as to meet minimum technology-based standards or secondary treatment standards for point sources, and federal, state, and local requirements applicable to nonpoint sources), eligibility requirements, credit calculation and verification guidelines, safeguards to ensure that the entire delivered load is accounted for and that water quality will be protected, certification and enforceability, and accountability and tracking. *Id.* at S-2-S-6; EPA, *A Guide for EPA's Evaluation of Phase I Watershed Implementation Plans* 4 (2010) ("2010 WIP Evaluation Guide"). The common elements relevant to land conservation are discussed further in section 11.0 below.

II. Analysis

A number of authorities provide general support for incorporating the benefits of land conservation into the Chesapeake Bay TMDL. First, the CWA provides the EPA with considerable discretion when approving and developing TMDLs. Given this grant of discretion, courts are likely to defer to the EPA's interpretation of the TMDL program, so long as it is reasonable and consistent with the CWA. The EPA could use this discretion to incorporate land conservation strategies into WIPs and offset programs. Utilizing land conservation to achieve water quality goals is consistent with the broad purpose and the overall scheme of the CWA, which aims to improve water quality and protect habitat for wildlife and fish. Further support for the incorporation of land conservation into the Chesapeake Bay TMDL comes from EO 13508 and the Chesapeake Bay Agreements from 1983,

1987, and 2000, which prioritize land conservation as an essential tool of Bay restoration. The land conservation goals and strategies adopted by EO 13508 and the Chesapeake Bay Agreements recognize the role land conservation can play in providing reasonable assurance that nonpoint source reductions will be achieved. Individual states and the EPA could use this statutory, regulatory, and policy framework to incorporate land conservation into WIPs and create land conservation offset programs to account for new and increased loadings.

A. The CWA Grants the EPA Discretion to Make Reasonable Policy Choices When Developing and Implementing TMDL Programs Under the CWA

The CWA provides the EPA and states with broad discretion when developing and implementing TMDL programs. States are given authority to establish the TMDL "at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety." 33 U.S.C. § 1313(d)(1)(C). States are then required to submit their TMDLs to the EPA for approval. 33 U.S.C. § 1313(d)(2). The CWA does not specify any guidelines for approval or disapproval of the state-submitted TMDLs, thereby affording the EPA broad discretion in its approval process. *See id.* Furthermore, the CWA instructs the EPA to establish TMDLs for states that fail to do so, or for states with disapproved TMDLs. *Id.* The only requirement for the EPA in the development of TMDLs is that the Administrator establish loads "as he determines is necessary to implement the water quality standards applicable to such waters." *Id.* The CWA also provides the EPA with discretion in the development and implementation of Chesapeake Bay management plans under section 117(g), 33 U.S.C. § 1267(g)(1), which requires the Administrator to "ensure that management plans are developed and implementation is begun . . . to achieve and maintain" water quality goals.

Due to the gravity of the nation's water quality problems and the complexity of watershed ecosystems, the CWA cannot possibly provide a detailed explanation of each water quality program it seeks to implement. Here, Congress has not directly spoken on the issue of including land conservation in the development and implementation of TMDLs. Given the absence of a defined prescription for TMDLs within the Act and the Act's grant of discretion to the EPA in the approval and development of TMDLs, the Agency will likely be afforded deference in its administration of the TMDL program. When "Congress has not directly addressed the precise question at issue," courts will defer to an agency interpretation so long as it is "based on a permissible construction of the statute." *Chevron, U.S.A. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 843 (1984).

The principles of deference are particularly relevant where the "subject under regulation is technical and complex." *Aluminum Co. of Am. v. Cent. Lincoln Peoples' Util. Dist.*, 467 U.S. 380 (1984); *see also Pauley v. BethEnergy Mines Inc.*, 501 U.S. 680, 697 (1991) (holding that in circumstances where a federal act produces a complex and highly technically regulatory program, courts defer to the agency entrusted by Congress to make policy determinations). The Fourth Circuit has noted that:

Congress charged EPA, in the [CWA], with developing special expertise in the control of water pollution, and with using that expertise to carry out the [CWA]'s goal of improving water quality. As a result, EPA is entitled to special deference when it applies the general provisions of the [CWA] to the complexities of particular water pollution control problems.

Shanty Town Assocs. Ltd. P'ship v. EPA, 843 F.2d 782, 790 (4th Cir. 1988). Thus, the EPA has relatively broad latitude to develop and implement the TMDL program and may incorporate land conservation into TMDL programs, so long as doing so is demonstrably consistent with the requirements of the CWA.

B. Incorporation of Land Conservation into the Chesapeake Bay TMDL Is a Reasonable Policy Choice

Given the CWA's grant of discretion to the EPA in the approval and development of TMDLs, the Agency may choose to incorporate land conservation strategies into the Chesapeake Bay TMDL. This decision is likely to be given deference by courts because it is a reasonable policy choice. Utilizing land conservation to achieve water quality goals is not only consistent with the CWA and its implementing regulations, but also with relevant Agency guidance, EO 13508, and the 1983, 1987, and 2000 Agreements among the Bay jurisdictions.

1. Using Land Conservation to Achieve Water Quality Goals Is Consistent with the CWA

Courts will likely find incorporation of land conservation into the Chesapeake Bay TMDL to be a reasonable policy choice. Although the CWA does not directly authorize the use of land conservation in the TMDL, reliance on land conservation to improve water quality is consistent with the overall goals and policies of the Act. Furthermore, it is logical to utilize land conservation in the TMDL program because other programs specifically adopted by the CWA, such as the Chesapeake Bay Agreement, use land conservation as a key strategy to achieve water quality improvements. See 33 U.S.C. § 1267; *Chesapeake 2000*, at 8-9.

When evaluating the reasonableness of an agency's policy choice in the implementation and interpretation of a statute, the Supreme Court has looked to the "broad purpose" of the statute. *Babbitt v. Sweet Home Chapter of Cmty. for a Great Oregon*, 515 U.S. 687, 698 (1995). The stated goals of the CWA include improving water quality for the "protection and propagation of fish, shellfish, and wildlife" and for recreational purposes. 33 U.S.C. § 1251(a)(2). Furthermore, the CWA aims to encourage "expeditious" development and implementation of programs for the control of nonpoint sources of pollution. 33 U.S.C. § 1251(b). The use of land conservation-which can provide water quality improvement services such as nutrient cycling and storage, nutrient loading avoidance, sediment filtration, as well as essential habitat for fish, shellfish, and wildlife-in the achievement of water quality goals is consistent with the "broad purpose" of the CWA.

Furthermore, the use of land conservation is consistent with the overall scheme of the Act and with other programs codified in the Act. Section 117, 33 U.S.C. § 1267, of the CWA incorporates the Chesapeake Bay Agreement into the Act. One of the five main goals of the Agreement is to "preserve, protect and restore those habitats and natural areas that are vital to the survival and diversity of the living resources of the Bay and its rivers." *Chesapeake 2000*, at 4; see also *1987 Chesapeake Bay Agreement*, at 2. Recognizing the need for preservation and conservation of marshes, wetlands, and forests in order to improve water quality in the Bay, the Agreement places a strong focus on preservation and conservation of land including wetlands, forests, marshes, and farms. *Chesapeake 2000*, at 3-5, 8. By incorporating federal support for the Chesapeake Bay Agreement into the CWA, Congress effectively endorsed the use of land conservation strategies in the achievement of water quality standards.

2. Using Land Conservation to Achieve Water Quality Goals Is Consistent with Other Relevant Guidance and Policies

Incorporating land conservation into the Chesapeake Bay TMDL is also consistent with other relevant policies and guidance. President Obama's EO 13508 called for "a renewed commitment to controlling pollution from all sources as well as protecting and restoring habitat and living resources, conserving lands, and improving management of natural resources." EO 13508, 74 Fed. Reg. at 23,099. President Obama recognized the importance of land conservation in the improvement of water quality in the Bay and called for Federal agencies to develop a "Federal Strategy" to conserve landscapes and ecosystems in the Chesapeake Bay. *Id.* at 23,099-100.

The Chesapeake Bay TMDL specifically incorporates the Federal Strategy developed in response to EO 13508. Section 7.1.2 of the Chesapeake Bay TMDL states the four main goals of the Federal Strategy—restoration of clean water, recovery of habitat, sustainability of fish and wildlife, and conservation of land—and declares the commitments and actions in the Federal Strategy to be "a unique and powerful tool to achieve the Bay's water quality goals." Chesapeake Bay TMDL, at 7-3. The Federal Strategy specifically highlights the importance of forest lands, wetlands, farmlands, and other landscapes, stating that conserving these lands is "critical to . . . ensuring the quality of our waters and supporting the fish and wildlife." Federal Strategy, at 75. The Federal Strategy set a goal of protecting an additional two million acres of lands throughout the watershed by 2025. *Id.* at 8, 76. Through the adoption of the Federal Strategy, the EPA and other top Federal agencies have declared the critical importance of land conservation to water quality restoration and other environmental benefits.

Finally, the EPA has issued guidance stating that WIPs are developed pursuant to section 117(g)(1), 33 U.S.C. § 1267(g)(1), of the CWA, which states that management plans are intended to achieve and maintain, "habitat restoration, protection, creation, and enhancement goals . . . for wetlands, riparian forests, and other types of habitat associated with the Chesapeake Bay ecosystem." See 33 U.S.C. § 1267(g)(1)(D). WIPs detail how and when each jurisdiction will meet pollution allocations and are intended to "play a central role in shaping the TMDL." Chesapeake Bay TMDL, at ES-1. The use of WIPs developed pursuant to section 117(g)(1), 33 U.S.C. § 1267(g)(1), as a central element in the TMDL program set forth in section 303(d)(1)(C), 33 U.S.C. § 1313(d)(1)(C), shows the interconnectedness of the two sections, providing further support for imputing the land conservation goals of the Chesapeake Bay Agreement to the TMDL program. Accordingly, both the CWA and the EPA, in its regulations and guidance, clearly contemplate conservation of wetlands, forests, and other habitat types as a means of achieving the TMDL.

C. The "Reasonable Assurance" Standard Can Be Construed to Permit the Utilization of Land Conservation in the TMDL

When the EPA establishes or approves a TMDL involving allocations to both point and nonpoint sources, the Agency "evaluates whether a TMDL provides reasonable assurance that nonpoint source controls will achieve expected load reductions." Chesapeake Bay TMDL, at 7-1. By assuring that nonpoint source reductions will be met, the EPA is more accurately able to allocate pollution loadings to point and nonpoint sources. *Id.* at 7-2. In determining reasonable assurance, the EPA uses its "best professional judgment" and may look to "whether practices capable of reducing the specified pollutant load: (1) exist; (2) are technically feasible at a level required to meet allocations;

and (3) have a high likelihood of implementation." */d.* In the Chesapeake Bay TMDL, the EPA has in addition developed an "accountability framework" and has incorporated the Federal Strategy as a means of providing reasonable assurance that nonpoint source reductions will be achieved. */d.* at 7-3.

The "accountability framework" created specifically for the Chesapeake Bay TMDL is comprised of four elements: (1) the Bay jurisdictions' development of WIPs; (2) the Bay jurisdictions' development of two-year milestones; (3) EPA's commitment to track and assess progress; and (4) EPA's commitment to take federal action when jurisdictions fail to develop or implement WIPs or fail to fulfill their two-year milestones. */d.* at 7-5. As discussed above, WIPs are designed, among other things, to achieve and maintain land conservation goals. Thus, WIPs that properly incorporate land conservation strategies and incentives can be found to provide reasonable assurance that nonpoint source reductions will be met.

In addition to the Bay-specific accountability framework, the EPA has identified the Federal Strategy as a tool to achieve water quality goals and to "provide additional support for reasonable assurance in [the] TMDL." */d.* Incorporating the comprehensive land conservation strategies set forth in the Federal Strategy into the TMDL program can help to provide reasonable assurance that nonpoint source pollution reductions will be met.

D. Standards Applicable to Offset Programs

The use of land conservation in the achievement of water quality goals is likely to be most successful in offset programs, which are designed to account for prospective pollution loadings. EPA has developed offset programs pursuant to CWA sections 301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C); 303(d), 33 U.S.C. § 1313(d); and 117(g), 33 U.S.C. § 1267(g). Chesapeake Bay TMDL, at 10-2. Land conservation may generate water quality credits to offset new or increased loadings not accounted for in the TMDL. "[O]ffsets are to be in addition to reductions already needed to meet the allocations in the TMDL." */d.* at 10-1. Offsets are used where "the TMDL does not provide a specific allocation to accommodate [] new or increased loadings." */d.* at S-1. The programs are intended to be "credible and transparent offset programs subject to EPA and independent oversight." */d.* The EPA has defined an offset credit as "a measured unit of nitrogen, phosphorus, or sediment pollutant reduction per unit of time at a location designated and standardized by the jurisdiction that can be generated, sold, or traded as part of an offset." */d.*

The EPA maintains regular oversight of offset programs through periodic audits and evaluations and reserves authority to comment on or object to offset programs that the EPA deems inconsistent with the CWA and its implementing regulations. */d.* at 10-3. The EPA has developed a number of "common elements" to be considered in evaluating offset programs; however, these elements are not regulatory requirements and the EPA allows "flexibility in the design and content of Bay jurisdiction offset programs." */d.* at 10-2, S-2. These common elements include legal authority to authorize the new or increased loading on the basis of an offset; assurance that credit generators have met reductions necessary to comply with the TMDL; establishment of certain minimum controls by the credit user (so as to meet minimum technology-based standards or secondary treatment standards for point sources, and federal, state, and local requirements applicable to nonpoint sources); criteria for eligibility; criteria for credit calculation and verification; inclusion of safeguards to ensure that credits are generated and that water quality will be protected; establishment of a certification and enforceability process; and systematic accountability and tracking. */d.* at S-2-S-6.

A number of these elements are relevant to the development of a land conservation offset program. First, the credit calculation and verification element is designed to ensure the appropriate use of metrics in offset calculations. *Id.* at S-3. Offset programs must appropriately quantify pollutant loading credits generated and routinely verify that the program is producing expected reductions. *Id.* This may present a challenge to land conservation programs because the loading credits generated by conserved land may be difficult to accurately quantify and monitor. Additionally, the EPA looks to how offset programs account for "nutrient delivery equivalency of the offset generated and the offset consumed both in terms of the equivalency of pollutants and the location of the sources." 2010 WIP Evaluation Guide, at 4. Land conservation offset programs should therefore account for nutrient equivalency between credits generated and loadings offset and may be limited as to the area in which credits may be used.

Another potential obstacle to the development of land conservation offset programs is the safeguards element. Under this element, the EPA has identified the importance of "temporal consistency" between when credits are generated and used. Chesapeake Bay TMDL, at S-4. Proponents of land conservation may wish to design programs that allow a credit producer to accumulate credits to be used in the future. The temporal consistency element is intended to assure that "credits should not be used before the time frame in which they are generated." *Id.* at S-4 (emphasis added). It is likely that the temporal consistency element applies in situations where no credit exists at the time of a claimed offset, rather than situations where credits have already been accumulated. Even when temporal consistency is required, there may be a middle-ground available where land conservation offset programs are permitted to accumulate and expend offset credits for a restricted period. For example, each credit may be valid for a one- to two-year period, during which accumulated credits may be used to offset future loadings generated during that period. This type of short-term accumulation is consistent with the aim of the temporal consistency requirement, which is to ensure that credits are generated before they are used.

One common element that favors land conservation offset programs is the requirement of sustainability, which evaluates whether offset programs will be in place at the time of load generation and remain in place throughout the life of the increased loading. 2010 WIP Evaluation Guide, at 4. Land conservation is particularly well suited to meet the sustainability requirement because permanent protection of land makes it more likely that environmental enhancements will remain in place over time and continue to generate credits. Land conservation offset programs are likely to survive the life of the increased or expanded loadings they are designed to offset.

III. Conclusion

Land conservation is an appropriate water quality management strategy that could be incorporated into the Chesapeake Bay TMDL and TMDL offset programs. The CWA and its implementing regulations, the Chesapeake Bay TMDL, EO 13508, and agency guidance provide support for the use of land conservation in the achievement of water quality goals. While ample authority exists to support the use of land conservation and management strategies in state WIPs, these strategies have not been extensively adopted. Nonetheless, land conservation is likely to be most successful in the context of an offset program, where it can be reasonably expected to offset prospective pollution loadings.

In order to strengthen support for the use of land conservation in the TMDL and in offset programs, the EPA could be asked to issue guidance relating to criteria for reasonable assurance with respect to offset programs. The EPA could issue guidance specifying that WIPs containing land conservation strategies and incentives constitute additional reasonable assurance for TMDLs. Furthermore, the Agency could issue guidance that identifies the incorporation and consideration of land conservation strategies and incentives as a common element to be considered in the development and approval of offset programs.