

Maintain Healthy Watersheds Draft Decision Framework

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1. ARTICULATE PROGRAM GOAL:

Maintain local watershed health across a range of landscape contexts.

With this goal, GIT 4 intends to bring attention to the challenge of protecting streams and watersheds that are healthy today. This initiative complements the "dirty waters" approach which focuses on restoring waters to health after they have been allowed to be degraded.

Healthy watersheds sustain local social, economic, and environmental benefits at optimal levels and contribute to achievement of CBP goals for the tidal Chesapeake Bay and tributaries. The optimal levels at which such benefits are sustainable will depend upon the landscape context of the watershed.

For example, within rural landscapes healthy watersheds typically have high percentages of forest cover and low percentages of impervious surface area, high connectivity between terrestrial and aquatic habitats, natural flow regimes, and stable stream channels. Watersheds in urban landscapes may lack some of these attributes; but even in urbanized landscapes, significant social, economic, and environmental benefits can be sustained through land use planning and implementation of practices that protect watershed functions.

2. DESCRIBE FACTORS INFLUENCING GOAL ATTAINMENT(SYSTEM-LEVEL MODEL):

Landscape condition

- Stream and watershed health are largely the product of landscape condition, including the amount and location of forest cover, impervious surface, and connectivity between terrestrial and aquatic habitats.
- Flow regimes and channel stability also are important factors.

These physical factors are strongly influenced by the human factors identified below.

Local government planning

- Landscape condition largely is the product of local government land use planning and land use regulation.
- Commercial and residential land development, energy development, and agricultural and forest management contribute to the condition of local landscapes and therefore the health of local streams and watersheds.

Land Conservation

- Permanent preservation of resource lands (eg forests) can contribute significantly to assuring the long term health of streams and watersheds.

Land use practices

- Stream and watershed health is also the product of practices, such as storm water runoff management and forest and stream corridor protection, which are implemented by private sector land users including farmers, foresters, commercial property managers, and homeowners.

Government program implementation

- Government programs also can be key factors that influence stream and watershed health. Important programs include CWA anti-degradation, local code and ordinance enforcement, and land protection.

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- Metrics for tracking and reporting stream and watershed health are important components of effective government programs.

The following maps illustrate watershed-wide data for some of the above-listed factors. [Show maps of forest cover, impervious surface and protected lands here]

3. ASSESS CURRENT MANAGEMENT EFFORTS – IDENTIFY GAPS

Landscape Condition

Current Efforts: There are a number of watershed-wide characterizations of landscape condition that can be made available for use in healthy watershed protection planning and accountability. Among them are the forest, impervious area and protected lands data layers that are illustrated above under "Factors Influencing Goals."

Gaps: Generally, there is a lack of information concerning trends in landscape condition. Some of the available watershed-wide data layers that characterize landscape condition are out of date.

Managers need science-based guidance on landscape-scale conditions (e.g., minimum percent forest cover, maximum percent effective impervious area) that are necessary to assure healthy watershed protection.

Local Government Planning

Current Efforts: With respect to water resources, local government planning efforts in the Chesapeake Bay watershed today are preoccupied with the exigencies of the Bay TMDL and their respective State Watershed Implementation Plans.

Gaps: Generally, the identification and protection of healthy watersheds has not received enough attention in public discourse to make it a planning and resource allocation priority at the local level. Efforts are needed to raise awareness and understanding of the issue.

Localities need a better understanding of the economic justification of healthy watershed protection.

Localities need models of successful healthy watershed protection strategies that are relevant to their local planning and implementation context.

Land Conservation

Current Efforts: There is a wide variety of government and non-government land conservation efforts including current state commitments to increase lands under permanent protection, land conservancies, and the EO13508 strategy commitment to protect an additional two million acres in the Chesapeake Bay Watershed.

Gaps: Generally, existing land conservation programs are not targeted for the particular purpose of protecting currently healthy streams and watersheds.

Land Use Practices

Current Efforts: There are many existing resources that describe land use practices that can contribute to healthy stream and watershed protection. They are widely available through the internet at web sites of government agencies and non-government organizations at all levels.

Gaps: Evaluation of gaps relevant to the communication, promotion and implementation of private-sector land use practices may be a topic that GIT4 will pursue at a later date.

Government Program Implementation

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Current Efforts:

Antidegradation

State water quality standards include an anti-degradation policy and implementation method. The water quality standards regulation requires States to establish a three-tiered anti-degradation program.

Tier 1 maintains and protects existing uses and water quality conditions necessary to support such uses. An existing use can be established by demonstrating that fishing, swimming, or other uses have actually occurred since November 28, 1975, or that the water quality is suitable to allow such uses to occur. Where an existing use is established, it must be protected even if it is not listed in the water quality standards as a designated use. Tier 1 requirements are applicable to all surface waters.

Tier 2 maintains and protects "high quality" waters -- water bodies where existing conditions are better than necessary to support CWA § 101(a)(2) "fishable/swimmable" uses. Water quality can be lowered in such waters. However, State and Tribal Tier 2 programs identify procedures that must be followed and questions that must be answered before a reduction in water quality can be allowed. In no case may water quality be lowered to a level which would interfere with existing or designated uses.

Tier 3 maintains and protects water quality in outstanding national resource waters (ONRWs). Except for certain temporary changes, water quality cannot be lowered in such waters. ONRWs generally include the highest quality waters of the United States. However, the ONRW classification also offers special protection for waters of exceptional ecological significance, i.e., those which are important, unique, or sensitive ecologically. Decisions regarding which water bodies qualify to be ONRWs are made by States and authorized Indian Tribes.

Antidegradation implementation procedures identify the steps and questions that must be addressed when regulated activities are proposed that may affect water quality. The specific steps to be followed depend upon which tier or tiers of anti-degradation apply.

At its March, 2011 meeting, State agency representatives from Pennsylvania, Virginia and Maryland briefed GIT4 members on their respective approaches to anti-degradation. Following is a summary of those briefings:

Pennsylvania: The origin of Pennsylvania's EPA-approved anti-degradation program dates back to the early 1970s when PA's pre-EPA water quality regulations were revised to implement the requirements of EPA's Clean Water Act and eventually evolved into today's current form. The anti-degradation concept is to promote the maintenance and protection of existing water quality uses of all surface waters and apply additional levels of protection to those surface waters that are exceptionally significant. Antidegradation requirements in Pennsylvania provide three levels or tiers of stream protection. In the PA portion of the Chesapeake Bay Basin, over 13,000 mi of streams have the two higher levels of protection and a stricter permitting process. Citizens have the option to request assessments to determine if streams qualify for the more protective High Quality or Exceptional Value listings. Continuous monitoring by PA Biologists and local watershed watchdog groups is critical to PA's anti-degradation success. Twenty streams are pending designation with 60 under consideration for assessment. Erosion and sediment control regulations were strengthened in 2010. The revisions establish Riparian Buffer requirements for Special Protection watersheds. No earth disturbance is permitted within 150 feet of an intermittent stream, perennial stream, lake, pond or reservoir and existing riparian buffers must

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be protected in perpetuity. For Special Protection waters failing to attain their designated use, a 150 foot wide Riparian Forest Buffer must be established and protected in perpetuity or an existing 150 foot wide Riparian Forest Buffer must be protected in perpetuity. In addition, of 2,600 local governments in PA, more than 230 have local buffer protection ordinances.

Virginia: recently added watershed designations for identified priority waters for protection. Richmond County is a pilot for this; informs county planning. Rivanna RBC is working toward specific protective language in local ordinances. Antidegradation laws have not been used as seriously as they should be.

Maryland: established its first anti-degradation policy in 2004. Regulatory guidance is under development. MD uses BIBI, Fish IBI to designate HQ waters; and a watershed scale to protect identified healthy reaches. Any development within a Tier II watershed is subject to stricter permitting regulations. Tier II watersheds cover 20% of MD. There are challenges with coordinating the agencies and trying to get stricter regulations. Must consider social and economic justification if discharge will degrade a High Quality Tier II segment. Monitoring is limited by staffing.

Gaps: Current monitoring programs do not provide adequately for tracking and reporting the efficacy of the jurisdictions' anti-degradation policies.

Presently, there is no clear linkage between actions that could be taken to protect currently healthy watersheds (e.g., forest preservation) and the tracking and accountability system through which management actions will be credited for purposes of the Bay TMDL.

4. DEVELOP MANAGEMENT STRATEGY

States and localities have the principle roles in healthy stream and watershed protection. The GIT 4 strategy focuses on supporting those roles through information and knowledge sharing, developing tools, advocacy, and tracking and reporting outcomes.

Landscape condition

In order to support the efforts outlined below, GIT4 will collaborate with the CBP STAR group to identify and pursue development of priority data layers that provide contemporary characterizations of landscape condition and trends.

Support local government planning that provides for the protection of currently healthy streams and watersheds

In 2011, conduct research and issue calls across the CBP community to find examples of local land use planning that includes the identification and protection of currently healthy watersheds.

Develop communications messages to promote healthy stream and watershed protection

Develop a white paper on the local economic benefits of healthy watershed protection (in progress in 2011).

In 2012 and beyond:

Use best available communications methods to promote the best examples to local governments and other local entities.

Communicate the importance of healthy watershed maintenance to key stakeholders and decision makers.

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Identify and communicate tools and approaches that have proven successful in healthy watershed protection at the local level.

Develop an on-line workspace to develop and pilot communications tools that support the GIT4 mission.

Influence government program implementation to support healthy stream and watershed protection.

In 2011, propose and collaborate with the CBP STAC on a workshop to explore and define the linkage between healthy watershed protection and the Bay TMDL.

In 2012 and beyond, collaborate with CBP GIT5 and other entities that are involved in land conservation targeting and implementation to influence land conservation program implementation in support of healthy watershed protection.

Develop and support methods and tools to track and report watershed health.

In 2011, publish in the Bay Barometer report the currently available watershed-wide data on the Benthic Index of Biotic Integrity (BIBI) as our current metric of stream and watershed health.

Compile and distribute information from state anti-degradation programs (states presented anti-degradation program summaries at the March 4, 2011 GIT meeting).

Develop a pilot fish community indicator of watershed health, based on existing fish survey data, and in partnership with the Habitats Goal Team and STAR's Non-tidal Monitoring Work Group.

5. DEVELOP MONITORING PROGRAM

Stream Health (Benthic IBI by segment or monitoring station): An effective way to measure the health of freshwater streams and rivers is to study the many tiny animals that live in these waters, called "benthic macro-invertebrates". The abundance and diversity of snails, mussels, insects and other bottom-dwelling organisms are good indicators of the health of streams because these animals can't move very far and they respond to pollution and other environmental stressors.

Benthic macroinvertebrates are generally harmed by direct and indirect effects of pollutants such as metals, acidity, sediment, pesticides, nitrogen and phosphorus. These pollutants come from sources such as mining, agriculture, urban and suburban runoff, automobile and power plant exhaust, and wastewater treatment facilities.

6. ASSESS PERFORMANCE

Outcome-Based Metrics

Currently, the stream benthic macroinvertebrate index of biotic integrity that is presented above under the heading "Monitoring" is the metric with which performance in stream and watershed protection is assessed.

Activity-Based Metrics

Performance assessment metrics are needed for the purpose of tracking goal team activities.

7. MANAGE ADAPTIVELY

CASE STUDIES

The following are examples of localities that have maintained and protected their healthy watersheds.

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Baltimore County, MD

Baltimore County used smart growth, ecology-based planning and community advocacy to preserve a treasured landscape. The Valleys Planning Council served as the catalyst for the legendary 1964 ecology-based Plan for the Valleys by Ian McHarg - laying the groundwork for a 47-year track record of achievement in resource conservation, land preservation, and growth management in northwestern Baltimore County. (A Sustainable Chesapeake)

Fairfax County, VA

Despite being the most populous county in Virginia, Fairfax has some of the healthiest waterways in the state. The county has effectively preserved riparian buffers in newer development areas through their zoning regulations. Although the number of impaired segments in Fairfax County has increased over time, watershed plans, buffer requirements, and zoning regulations developed in the 70s and 80s were ahead of their time and have protected water quality throughout much of Fairfax. They have also found that involving stakeholders and watershed advisory groups is a key component of successfully maintaining watershed health.

Lancaster County, PA

The Lancaster County Conservancy completed in 2010 the first phase of a sweeping land deal that will keep Susquehanna River Gorge green. The deal will ensure that private utility land will be conserved forever by the nonprofit Conservancy. The PPL Corp. plans to give 3,500 acres it now owns on both the Lancaster and York county sides of the Susquehanna River to the Lancaster County Conservancy. PPL will sell the land — which stretches from north of Safe Harbor Dam to south of Holtwood Dam and includes river islands — to the Conservancy for \$5 million. The Pennsylvania Department of Conservation and Natural Resources (PA DCNR) plans to pay \$4 million of the \$5 million. The other \$1 million is expected to be provided in equal shares by the commissioners of York and Lancaster counties. Then the utility will donate this \$5 million to the Conservancy, which will establish an endowment fund to maintain the land for public use in perpetuity. Under the agreement, PPL & DCNR will manage most of the formal recreation areas — campgrounds and boat launches— and a coalition led by the Conservancy will manage the natural areas. Other partners key to making the project happen include the Lancaster York Heritage Region, PA DCNR, The Conservation Fund, and the counties of Lancaster and York. The Susquehanna is the largest tributary to the Bay. Protecting these lands helps clean up the Bay.