

# Healthy Watersheds News



EPA-841-N-12-002

## Healthy Watersheds Initiative Action Plan Released

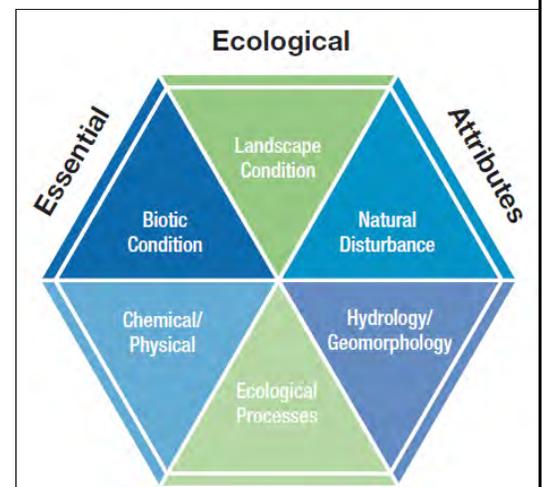
The Environmental Protection Agency (EPA) officially released *The Healthy Watersheds Initiative National Framework and Action Plan* and posted it online in October 2011. It is an outgrowth of work done by many states over the past decade or more to protect their high quality state waters. These states have led the way and EPA is building upon that work to encourage these efforts across the nation. The *Healthy Watersheds Initiative National Framework and Action Plan* is a collaborative product of the EPA, other federal and state agencies and non-governmental organizations.

As the Action Plan explains, the Healthy Watersheds Initiative is a cost-effective non-regulatory approach to protecting our aquatic ecosystems at the state scale that is based on the implementation of strategic watershed protection priorities. Protection priorities are developed collaboratively through integrated assessments of essential ecological attributes (see figure). Protecting ecological networks of healthy watersheds, and removing the causes of degradation, sustains healthy watershed processes and ensures successful restoration. The Action Plan lays out the next steps to encourage and support healthy watersheds assessments, protection and collaboration efforts.

*For more information on integrated assessments: U.S. EPA Science Advisory Board. 2002. "Essential Ecological Attributes" in A Framework for Assessing and Reporting on Ecological Condition*

ISSUE 1

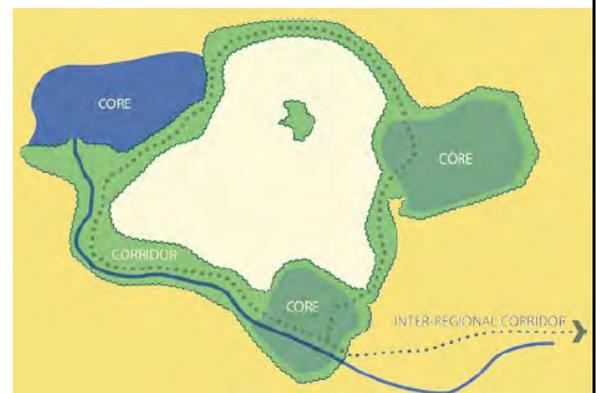
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**Key attributes for assessing watershed condition (US EPA 2002)**

## Healthy Watersheds Pilot Project: Assessing Green Infrastructure in Nelson County, Virginia

The Green Infrastructure Center and the University of Virginia partnered with Skeo Solutions to complete a green infrastructure assessment for Nelson County, Virginia. Nelson County is a rural county in the Chesapeake Bay Watershed, that stretches from the Blue Ridge Mountains in the west to the James River in the east. Land cover is 80 percent forested with high quality watersheds and minimal impairments. Development pressures, concern for the future costs of implementing TMDLs, and protecting the vibrant tourism economy encouraged the identification of the essential ecological hubs and corridors within the county. The assessment will be used to inform the comprehensive planning effort in Nelson County to protect high quality water resources and forests, promote sustainable agriculture and heritage and recreation tourism through the regulation of land use over time.



**Conceptual drawing of green infrastructure "hubs" or habitat cores and their connecting corridors**

*For more information, visit*

[http://www.skeo.com/index.php/outcomes/healthy\\_watersheds\\_demonstration\\_project](http://www.skeo.com/index.php/outcomes/healthy_watersheds_demonstration_project)

## EPA Releases Memo to Support, Prioritize Healthy Watersheds

On September 26, 2011 Nancy Stoner, Acting Assistant Administrator to EPA's Office of Water signed a memorandum in support of the *Healthy Watersheds Initiative National Framework and Action Plan*, which was sent to all EPA regional administrators, EPA Office of Water directors, Large Aquatic Ecosystem directors, the Association of Clean Water Administrators and the Association of Fish and Wildlife Agencies. The memo lays out the assistant administrator's support of Healthy Watersheds as part of a well-balanced national water program.

The memo also states that the Healthy Watersheds program can greatly improve our ability to protect aquatic ecosystems by using a systems approach to more fully protect the chemical, physical, and biological integrity of the nation's waters. The memo recognizes that many states have already developed their own strategies to identify and protect healthy watersheds and encourages EPA's regional offices to continue to work with their states and other partners to help implement the Healthy Watersheds Initiative as a priority for the EPA's Water Program.



### What Does a Healthy Watersheds Assessment Look Like?

EPA's Healthy Watersheds Initiative is non-regulatory and non-prescriptive. Furthermore, there is no regimented way to conduct a healthy watershed assessment, nor is there an agreed-to set of metrics used to define a healthy watershed. Rather, a state examines its watersheds at an appropriate scale through scientifically sound integrated assessments. Comparing the relative health of watersheds across a state can help strategically prioritize protection, restoration and monitoring actions.

A Healthy Watersheds assessment approach involves conducting integrated assessments of landscape condition, habitat, hydrology, geomorphology, water quality, and biological condition to ascertain ecological health, establish baseline conditions and/or define thresholds. Examples of assessments may include the development of flow-ecology relationships using the ELOHA method (Ecological Limits of Hydrologic Alteration), or green infrastructure assessments (identification of ecological hubs and corridors). There are many tools available to interpret the effects of landscape alteration and other stressors. Interpreting these stressors and ecological response characteristics across the landscape contribute toward the identification of healthy watersheds, as well as strategies to protect them.

Some states may have large amounts of detailed scientific data to conduct assessments, while others may have very limited data. When data are limited, a desktop assessment may be more appropriate. A desktop assessment is a GIS-based assessment using existing databases and may be useful as a screening tool for strategic planning and for laying the groundwork for future monitoring and integrated assessments.

A healthy watersheds assessment may take on a variety of forms, but the goals of the assessments are the same: to identify high quality areas using an integrated holistic approach; protect them from future impairment; and to increase the number of healthy watersheds in a state. The EPA publication "Identifying and Protecting Healthy Watersheds: Concepts, Assessments and Management Approaches" outlines examples of assessment methods and approaches. This document is available for download at [www.epa.gov/healthywatersheds](http://www.epa.gov/healthywatersheds)

*"The Association of Clean Water Administrators is pleased to be a part of EPA's development of the Healthy Waters Initiative, as we too value holistic approaches to water quality protection and improvement. While much attention has been appropriately paid to degraded waters in the past, it is high time to acknowledge dedicated efforts to protect clean watersheds. EPA's highlighting of the many benefits healthy watersheds offer - such as wildlife habitat protection, recreation, storm resilience, quality drinking water, improved land use decisions, and sustainability - both supports and complements state efforts." - September 2011*

## EPA and The Nature Conservancy Collaborate to Protect Healthy Watersheds

The EPA and The Nature Conservancy are working together to develop six healthy watersheds program implementation projects. These collaborative efforts leverage existing data across multiple agencies and organizations to implement healthy watersheds assessments and strategic plans to protect healthy watersheds. Projects are being scoped in Minnesota, Wisconsin, Washington, Tennessee, Virginia and in the New England region.

Creating partnerships and leveraging existing programs across state agencies is an important component of the Healthy Watersheds Initiative. This collaborative effort is cost-effective, provides quicker environmental results and assures that protection and restoration is being facilitated strategically from a holistic systems perspective.

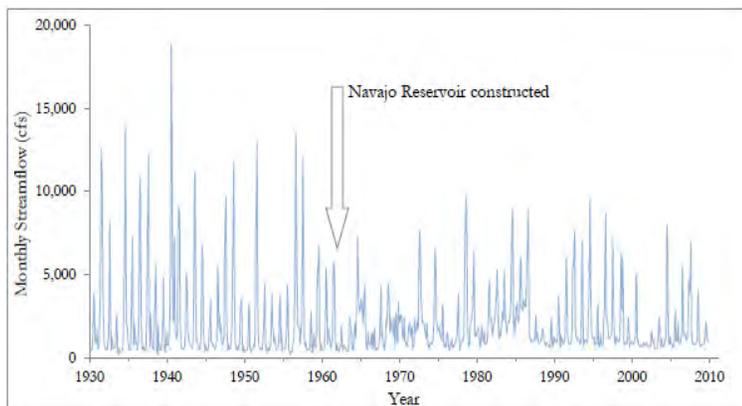
This partnership adds value to existing healthy watersheds protection at the state level by raising the visibility of projects, sharing data, identifying gaps and strategically prioritizing efforts across multiple stakeholders.

*"The Association of Fish & Wildlife Agencies supports the Healthy Watersheds Initiative and its approach to water quality protection and improvement of our nation's aquatic resources. The initiative will help improve wildlife and fisheries habitat and will increase opportunities for recreational angling -key priorities of state fish and wildlife agencies."— October 2011*

## Healthy Watersheds Pilot Project: Hydrologic Impacts of Altered Rivers in New Mexico

Significant alteration of New Mexico's rivers through dams, levees, diversions and reservoir construction in concert with land use change and ground water pumping have contributed to major changes in the natural flow regime. EPA Region 6 and the Cadmus Group, Inc. developed a comprehensive review and analysis of hydrologic alteration for 32 New Mexico stream sites across the state that characterize a range of hydrologic conditions. They analyzed long-term flow records to identify changes in eight streamflow metrics that characterize the magnitude, frequency, duration and timing of high and low flow conditions.

Most sites sampled in the alteration analysis demonstrate a change in at least one flow regime component. Flow alteration was observed through the shifts in peak flow magnitude and timing, minimum flow magnitude, and/or the frequency and duration of high and low flow events. Many of the observed flow alteration types are consistent with those expected for sites subject to upstream diversions and groundwater withdrawal. The expected alteration response is expressed through reduced high flow magnitude and frequency, reduced low flow magnitude, and increased low flow duration. Observed types of flow alteration for sites located downstream of a major dam include flow stabilization and an across-the-board decrease in flow. Flow stabilization was observed as decreased high flow magnitude/frequency and increased low flow magnitude, as seen in the figure below, which is representative of dam-altered rivers.



Monthly streamflow data for the San Juan River near Farmington site

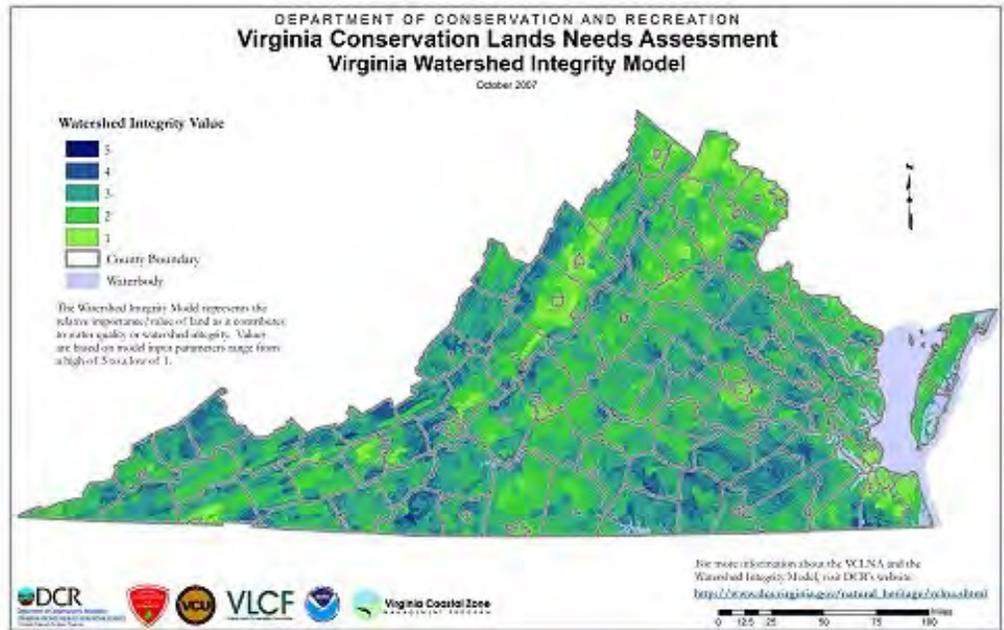
The results of the hydrologic alteration analysis indicate that: (1) hydrologic alteration is a widespread issue throughout New Mexico; (2) a broad range of stream types have been affected; and (3) alteration is not limited to streams impacted by large-scale water management projects. Protection of environmental flows in New Mexico is essential for effective protection and restoration efforts. Evaluating flow alteration and the response of flows to hydrologic alteration lays a foundation for the development of planning and implementation goals that protect the range of instream flow levels needed for healthy ecological systems in New Mexico.

Read the report: The Cadmus Group. 2011. "Evaluation of hydrologic flow alteration and opportunities for environmental flow management in New Mexico."

## Virginia Develops Methods to Assess Watershed Health

Many states are taking significant steps in the direction of identifying and protecting healthy watersheds. Virginia's Watershed Integrity Model was developed in collaboration with the Virginia Department of Forestry as part of the Virginia Conservation Lands Needs Assessment to show the relative value of land as it contributes to watershed integrity.

The Watershed Integrity Model represents important terrestrial features that should be conserved for watershed integrity based on the best available data. This includes features that support watershed health as well as a modified Index of Biotic Integrity (mIBI). The mIBI was developed by Virginia Commonwealth University's Center for Environmental Studies and serves as a stream health indicator.



### The Virginia Watershed Integrity Model

The EPA is working to enhance and support actions by all states to protect aquatic ecosystems and prevent further water quality impairments, thus reducing costs and demonstrating environmental results.

## Learn More About Healthy Watersheds on the Web

Read the Technical Document, action plan and find links to more information about the healthy watersheds approach and other assessment examples.

[www.epa.gov/healthywatersheds](http://www.epa.gov/healthywatersheds)

For more information or questions about the EPA's Healthy Watersheds Initiative, or to contribute stories for consideration in an upcoming issue of Healthy Watersheds News, please contact Laura Gabanski:

[Gabanski.Laura@epa.gov](mailto:Gabanski.Laura@epa.gov)

## The Healthy Watersheds Initiative Spurs Collaboration with Existing EPA Programs

The Healthy Watersheds Initiative naturally complements many existing EPA programs. Partnerships are being built with the Source Water Protection Program, Wetlands Program, the Biocriteria Team, and the National Estuaries Program, with plans to partner with additional EPA programs.

Healthy Watersheds Initiative data and assessments contribute to the Recovery Potential Screening tool for targeting TMDL implementation. The Healthy Watersheds Initiative complements EPA's Low Impact Development (LID) efforts that help avoid human-caused disturbance to undeveloped areas by identifying high quality areas and intact processes (e.g. hydrology) to protect. LID practices can be implemented in new developments and these developments can be strategically placed using smart growth principles to further minimize impacts to aquatic ecosystems.

Many EPA programs use tools, assessment processes, and data that will help with assessing healthy watersheds. The Healthy Watersheds Initiative can strengthen these existing programs through technical support and encouraging a holistic systems approach to achieve environmental outcomes. The Healthy Watersheds Initiative works across programs to implement shared goals and to leverage resources.

In these challenging economic times, we are often tasked with doing more with less. Working across programs and disciplines can maximize efforts to achieve environmental protection goals. Various agencies and organizations are working to protect the same aquatic resources. It is essential that this protection is not done through isolated efforts, but rather with targeted efforts that consider the dynamic aquatic ecosystems in the landscape.