

Spokane Tribe Works to Maintain and Restore Healthy Watersheds

While much attention is paid to efforts being made to clean up the nation's impaired waters, less publicity is given to critical efforts made to protect healthy waters and prevent future impairments. Many tribes are working in partnership with federal and state agencies to protect and restore their healthy watersheds, with particular focus on protecting important fish and wildlife habitat.

The Spokane Indian Reservation sits approximately 50 miles northwest of Spokane, Washington and covers 157,376 acres. The tribal lands contain healthy aquatic ecosystems and high quality land. Recognizing this, the tribe has prioritized protecting aquatic ecosystems and providing healthy habitat on its lands.

Flow Restoration

In the early 1900s, McCoy Creek was diverted from its original path to be used to irrigate farmland, causing water levels in McCoy Lake to drop. The Spokane tribe has worked with the Northwest Indian Fisheries Commission, U.S. Environmental Protection Agency (EPA) and the Natural Resources Conservation Service to restore McCoy Lake to its natural depth. The tribe purchased land and water rights to route the creek back to its original channel, nearly doubling the flow of water into McCoy Lake. In order to restore and enhance the stream's riparian habitat, the tribe built livestock exclusion fences and planted thousands of native trees and shrubs along the stream corridor. As a result of the restoration efforts, a healthy mountain snow pack, and abundant spring rainfall, the lake rose nine feet within two years of the creek's restoration.

Land Acquisition for Protection

The tribe has worked with the Bonneville Power Administration (BPA) and the Northwest Power & Conservation Council on land acquisition projects designed to protect and rebuild fish and wildlife populations affected by federal hydropower development in the Columbia River Basin. Land parcels are prioritized for acquisition based on their riparian and wildlife value and their contribution to contiguous acreage. The tribe recently completed a 3,926-acre acquisition that will protect wildlife habitat, including important salmon habitat. "This collaborative project fits perfectly with BPA's commitment to restore or protect critical habitat that helps preserve the Pacific Northwest as the special place that it



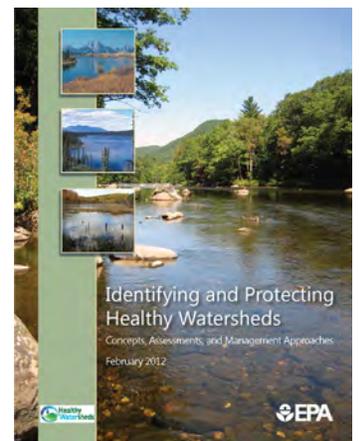
McCoy Lake. Photo credit: Brian Crossley

is," said Greg Delwiche, Vice President of Environment, Fish and Wildlife at BPA. "So far, BPA has protected more than 300,000 acres across the Northwest through the agency's mitigation efforts."

Successful protection efforts such as these land acquisitions demonstrate how important tribal partnerships are for protecting and restoring healthy watersheds.

EPA Releases Healthy Watersheds Technical Document

In February 2012, EPA released the new technical document *Identifying and Protecting Healthy Watersheds: Concepts, Assessments, and Management Approaches*, which gives state scientists and managers an overview of the key concepts behind the Healthy Watersheds Initiative. It includes descriptions of integrated assessment approaches to identifying healthy watersheds, assessments of healthy watershed components, management options, and assessment tools and datasets. The document serves as a resource for states and others interested in conducting healthy watersheds assessments and implementing holistic, healthy watersheds protection programs. The document is available at www.epa.gov/healthywatersheds.



States Use 319 Grants to Maintain Healthy Watersheds

State Nonpoint Source Management Programs rely on Clean Water Act Section 319 grants to help reach their watershed improvement goals. Section 319 funds have been crucial for the development and implementation of nonpoint source pollution control projects across the U.S. The funds enable states to work collaboratively with federal, state, local, and private sector groups to leverage resources and reach common goals. Section 319 grants are often used to fund restoration projects that address polluted runoff generated by agricultural and forestry activities. The grants are also used to protect riparian areas, shorelines, and wetlands. Use of grants for protection will continue to be supported under the revised 319 grant guidelines.

A variety of healthy watershed projects can be supported by Section 319 grant funding. Many states already use their grant funds to protect high quality waters, to conduct assessments to identify healthy waters, and to restore waters in watersheds that are, for the most part, healthy. Examples include:

- In 2007, Virginia used funds to support their statewide Healthy Waters Strategy Pilot. The project identified healthy watersheds and ecologically healthy streams, communicated the location of these healthy areas, and identified threats from changing land use patterns (see www.dcr.virginia.gov/healthywaters).
- Between 2008 and 2011, Alaska used funds to assess instream flow on Holgate Creek to support efforts to protect and maintain anadromous fish and wildlife habitat.
- In 2002, 2006, and 2009, Kentucky used funds to develop watershed-based plans for healthy watersheds that drain to Outstanding Natural Resource Waters or Outstanding State Resource Waters. The plans call for increased protection from land use change in healthy areas and identify areas in need of restoration to maintain the healthy status.



Kentucky's Red River Gorge is listed as a Wild River and an Outstanding State Resource Water, giving it greater levels of protection against land use change. Section 319 funds were used to develop a watershed protection plan for Red River Gorge. Photo Credit: Kentucky Division of Water.

- In 2011, Maryland used funds to increase protection of Tier II high quality waters in two counties. Funding was also used to support biomonitoring of at-risk Tier II streams in order to assess remaining assimilative capacity.
- In 2008, Pennsylvania used funds to monitor Exceptional Value and High Quality waters. The monitoring was conducted to support complementary efforts preventing future impairment to these high quality waters.

States Present on Healthy Watersheds Assessments and Protection Programs at the 2012 National Water Quality Monitoring Conference

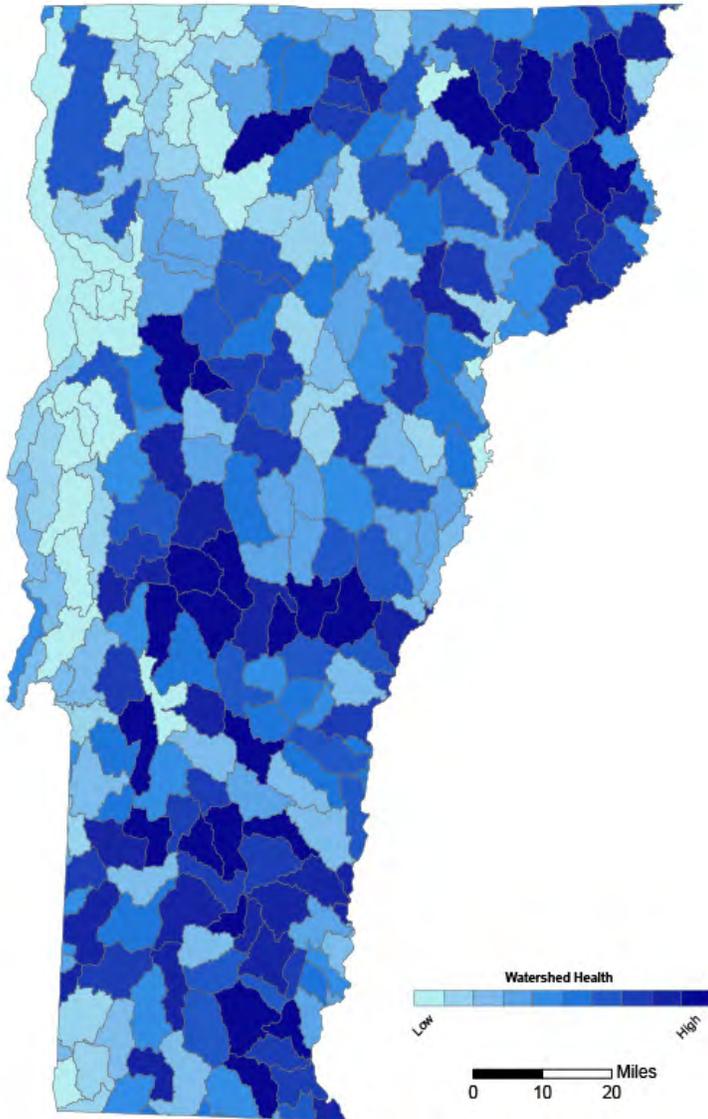
The National Water Quality Monitoring Council hosted its 8th National Water Quality Monitoring Conference on April 30 – May 4, 2012 in Portland, Oregon. A session titled “Identifying and Protecting Healthy Watersheds” provided an opportunity to share and discuss innovative assessment techniques that are being implemented around the country. The following are synopses of the talks given by each of the session’s four speakers.

Karen Larsen, from California’s State Water Resources Control Board, discussed California’s newly initiated Healthy Streams Partnership. Initiated in 2010, the Healthy Streams Partnership promotes efforts to identify and protect healthy streams. The partnership supports hypothesis-driven data collection, analysis, and reporting to provide integrated information for resource managers at the state and local levels. In collaboration with EPA’s Healthy Watersheds Initiative, the partnership is using existing data to perform an integrated assessment of watershed health through careful examination of the six healthy watershed attributes: biotic condition, landscape condition, natural disturbance, hydrology, ecological processes, and chemical and physical condition.

Ian Chisholm, from Minnesota’s Department of Natural Resources, presented the Watershed Assessment Tool (WAT) developed by the Minnesota Department of Natural Resources with support from the University of Minnesota (see www.dnr.state.mn.us/watershed_tool/). This web-based tool uses a systems approach to consider watershed processes and evaluate watershed health. The presentation demonstrated how results of the analysis encourage a comprehensive view of watershed health. Using WAT, health assessments for hydrology, geomorphology, biology, connectivity and water quality were each completed for all of Minnesota’s eighty one major watersheds.

Neil Kamman, from Vermont’s Agency of Natural Resources, discussed the importance of protecting high quality aquatic ecosystem components and their supporting landscape network for maintaining healthy watersheds in Vermont. An integrated assessment of watershed health was performed to identify areas characterized by high biological, chemical, and physical integrity,

and areas possessing intact processes. Maps that were created to display the final results of the healthy watersheds assessment can be used to identify priority areas for protection (see water.epa.gov/polwaste/nps/watershed/upload/hwi-watersheds-ch4.pdf). Neil also discussed ways that Vermont is merging the concepts of healthy watersheds and recovery potential, a complementary EPA initiative (see www.epa.gov/recoverypotential).



Christine Conn, from Maryland's Department of Natural Resources (MDNR), gave an overview of Maryland GreenPrint (see www.greenprint.maryland.gov). Maryland GreenPrint is a pioneering web-enabled map showing the relative ecological importance of every parcel of land in the state. GreenPrint shows where Targeted Ecological Areas (TEAs) occur and how the programs within Maryland State government work together to protect their most ecologically valuable areas. TEAs are the lands and watersheds ranked as the most ecologically valuable in the state ("best of the best") and were identified through a modeling analysis performed by an interdisciplinary team of natural resource biologists and land conservation managers at MDNR. TEAs

include large blocks of forests and wetlands, wildlife and rare species habitats, aquatic biodiversity hotspots, forests important for protecting water quality, high value coastal ecosystems, lands important for climate change adaptation, and areas supporting important fisheries. Another key principle underlying Maryland GreenPrint is the development of land conservation strategies that are based on transparent, scientifically defensible criteria, designated geographic targets, clearly defined objectives and measures of success.

Virginia Study Examines Effects of Flow Alteration on Aquatic Life

The Virginia Department of Environmental Quality's Office of Surface and Ground Water Supply Planning, in collaboration with EPA's Healthy Watersheds Initiative and other federal, state, non-governmental organizations, and academic partners, explored the effects of instream flow alteration on aquatic ecosystems. Findings from this effort include preliminary data that will contribute to the development of numeric instream flow criteria protective of aquatic life for use in evaluating water use permits.

This study used the principles of the Ecological Limits of Hydrologic Alteration (ELOHA) framework, a well-established holistic approach to defining environmental flow needs (see conserveonline.org/workspaces/eloha/). Environmental flows describe the hydrological components (e.g., flow magnitude, frequency, duration, timing, and rate of change) required to sustain freshwater and estuarine ecosystems, as well as human livelihood and well-being. Understanding how flow alteration affects aquatic life and water availability may assist Virginia in adequately meeting both social and environmental flow needs.

Environmental flow relationships were developed by examining current and baseline (reference) flow components or metrics and aquatic biological data within the state. Alteration to the natural flow regime can be caused by effluent discharges, water withdrawals, dams, urbanization, and agricultural activities. Determining the ecological consequences of flow alteration requires associating specific ecological responses to the observed flow alterations.

Key findings from this preliminary study include: 1) most flow metrics reflected a 10 - 50% alteration from baseline values to present day values; 2) various fish and macroinvertebrates were sensitive to changes in flow that affected their habitat or feeding area; and 3) distinct flow metric responses were found by stream type (e.g., perennial and stable base flow) and regionally (coastal plain/non-coastal plain).

Source: Tetra Tech, Inc., 2012. "Virginia Ecological Limits of Hydrologic Alteration (ELOHA): Development of Metrics of Hydrologic Alteration."

Chesapeake Bay Program Takes Action to Protect Healthy Watersheds

The Chesapeake Bay Program's Maintain Healthy Watersheds Goal Implementation Team (GIT4) was established for two reasons: (1) to keep watersheds throughout the Chesapeake Bay Watershed healthy by identifying, promoting, supporting, and tracking the implementation of sustainable land use practices in urban and suburban areas; and (2) to maintain reduced nitrogen, phosphorus, and sediment loadings to the Chesapeake Bay and the tidal portions of its tributaries by identifying, promoting, supporting, and tracking the implementation of sound land use practices.

GIT4 activities in 2012 include:

- In March, GIT4 hosted a Science and Technical Advisory Committee (STAC) workshop titled "The Beneficial Effects of Healthy Watersheds on Pollutant Fate and Transport". The purpose of the workshop was to discuss whether there is a scientific basis for changing the Chesapeake Bay Watershed Model's nutrient and/or sediment retention and loading rates for natural landscape features. Retention and loading rates of forests, streams, and wetlands were considered based on attributes such as land use, flow path, and hydraulic connectivity. A STAC workshop report is due to be completed later this summer.
- In keeping with the principle that "you get what you measure," GIT4 is initiating a project to periodically communicate the identity, health status, health threats, and protection status of state-identified healthy watersheds. The project is based on existing data and existing monitoring efforts underway in the Chesapeake Bay Watershed.
- The GIT4 Communications Workgroup is creating a set of key messages and actions to support GIT4 objectives when communicating with key audiences. In addition, the workgroup is attempting to incorporate a "Maintain Healthy Watersheds" track into the 2012 Chesapeake Watershed Forum. The Forum is an annual event hosted by the Alliance for the Chesapeake Bay that serves as a regional training opportunity for local watershed and conservation organizations, as well as local governments in the Bay region.

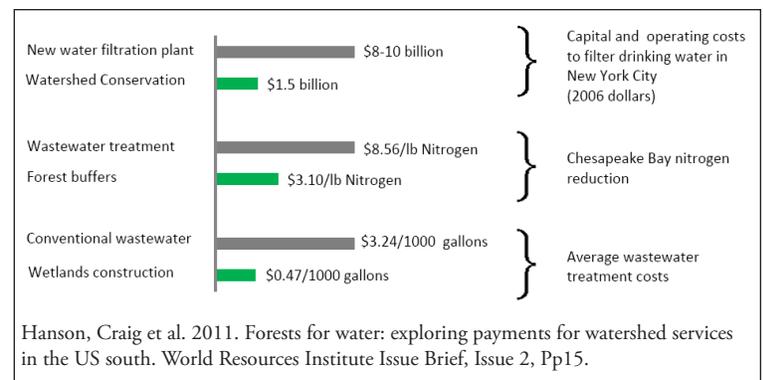
For more information about the Chesapeake Bay Program's Maintain Healthy Watersheds Goal Implementation Team, visit: http://www.chesapeakebay.net/groups/group/maintaining_healthy_watersheds_goal_implementation_team.

EPA Releases Fact Sheet on the Economic Benefits of Protecting Healthy Watersheds

Healthy watersheds provide a variety of ecological services, including clean water for healthy aquatic ecosystems, habitat for fish and wildlife, high quality drinking water, recreational opportunities, and reduced impacts from floods. Yet, healthy watersheds and the services they provide are often taken for granted. Once compromised, some of these services can be impossible to recreate.

In a new fact sheet released by the Healthy Watersheds Initiative, EPA describes the economic benefits of protecting healthy watersheds. Using examples from peer-reviewed literature and studies, the fact sheet includes case studies that demonstrate how protecting healthy watersheds can reduce capital costs for water treatment plants and reduce damages to property and infrastructure due to flooding, thereby avoiding future costs. Additional examples in the fact sheet show how protecting healthy watersheds can generate revenue through property value premiums, recreation, and tourism.

The fact sheet is available at www.epa.gov/healthywatersheds.



Watershed protection is less expensive than building new "grey" infrastructure. See the Economic Benefits of Protecting Healthy Watersheds fact sheet for more details.

For More Information

For more information or questions about EPA's Healthy Watersheds Initiative, visit www.epa.gov/healthywatersheds or contact Laura Gabanski: Gabanski.Laura@epa.gov

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