



Healthy Watersheds Initiative

National Water Census
Implementation Planning
Conference Call
July 1, 2010

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What is the Healthy Watersheds Initiative?

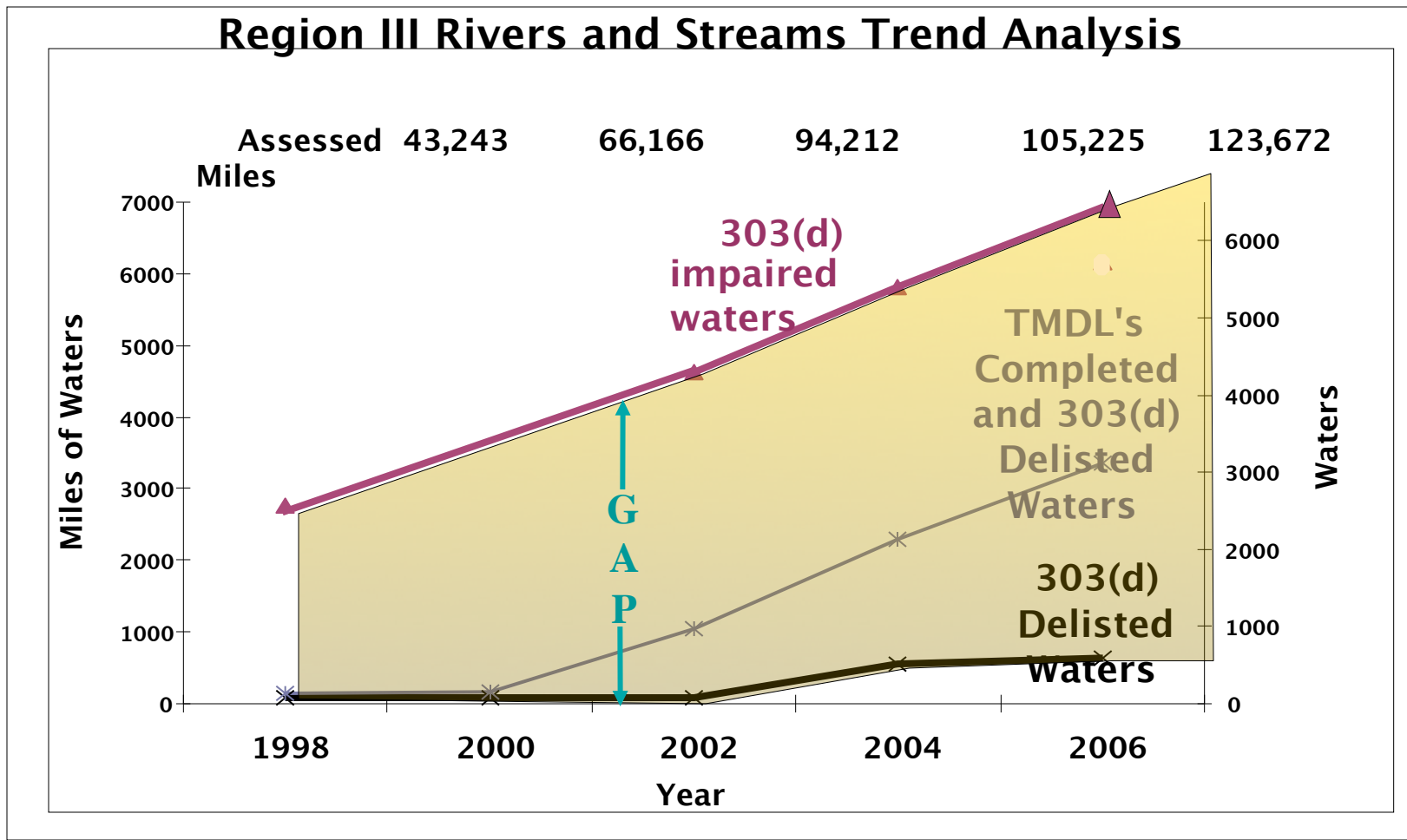
- An increased emphasis on protecting healthy and maintaining restored watersheds using an ecological approach incorporating the latest scientific methods and management tools that involves:
 - Working with states to identify healthy watersheds across the state (strategic)
 - Implementing programs at the state and local level that protect healthy watersheds
 - Incorporating healthy watersheds protection into EPA programs

CWA Section 101(a)

- The objective of the CWA is, “...to restore and **maintain** the chemical, physical, and biological integrity of the Nation’s waters.”
- The House Public Works Committee report on the CWA stated that the intended use of the term, “**integrity,**” was to recognize the **importance of preserving natural ecosystems,** rather than simply improving water quality in a narrow sense

Why a Healthy Watersheds Initiative?

Narrow the gap between impaired waters and restored waters:
fewer 303(d) streams or more restoration



Why a Healthy Watersheds Initiative?

- EPA recognizes the need to enhance our protection approaches to keep waters off the impaired waters list and to be more successful at restoring impaired waters
- Healthy watersheds form the critical ecological support system or building blocks that anchor our water quality restoration efforts
- Cost-effective to prevent aquatic ecosystems from becoming impaired

Other Benefits of a Healthy Watersheds Approach

- Minimizes ecological impacts of future land use
- Reduces costs to communities by minimizing vulnerability to floods, fires, and other natural disasters
- Reduces or eliminates costs of water treatment for drinking water by protecting aquifer recharge zones and surface water
- Ecosystems store carbon which can help offset carbon emissions, and intact river corridors can store floodwaters and support baseflow to mitigate extreme changes in precipitation
- Reduces vulnerability to invasive species
- Sustains future generations

What is the Healthy Watersheds Approach?

- **Maintenance of aquatic ecological integrity** by conserving and protecting our highest quality watersheds & intact components of watersheds
- **A strategic holistic systems approach** that includes protecting the key watershed processes and habitat needed for healthy aquatic ecosystems

How Do We Prevent Loss of Healthy Watersheds?

- Help states identify those healthy watersheds and portions of watersheds that need protection
- Develop tools to conduct integrated assessments
- Help promote implementation of protection and conservation programs that will maintain good water quality & healthy aquatic ecosystems

What is a Healthy Watershed?

Watersheds that have all or some of these characteristics:

- Habitat of sufficient size and connectivity for native aquatic and riparian species
- Biotic refugia or critical habitat (e.g., deep pools, seeps & springs) for survival during droughts
- A natural flow regime that supports aquatic species and habitat
- Natural transport of sediment and stream geomorphology that provide natural habitat
- Healthy aquatic biological communities
- Water quality that supports biotic communities & habitat
- Green infrastructure network of native vegetation in the landscape

How Do We Identify Healthy Watersheds?

Integration of assessments of:

Biota and Their Habitat

- Green Infrastructure (forest cover, headwaters, wetlands, riparian corridors, floodplains)
- Biological, chemical, & physical water quality condition (fish, macroinvertebrates, wetlands, biodiversity, nutrients, pH, temperature, riffle and pool habitat)

Key Processes That Sustain Them

- Hydrology and fluvial geomorphology (e.g, instream flows, natural channel form & movement of sediment)
- Natural disturbance (floods, droughts, fires, etc.)

Green Infrastructure Assessments or Landscape Condition

Pattern and structure of habitats and their importance to aquatic ecosystems, e.g., forest cover, headwaters, riparian zones, & floodplains

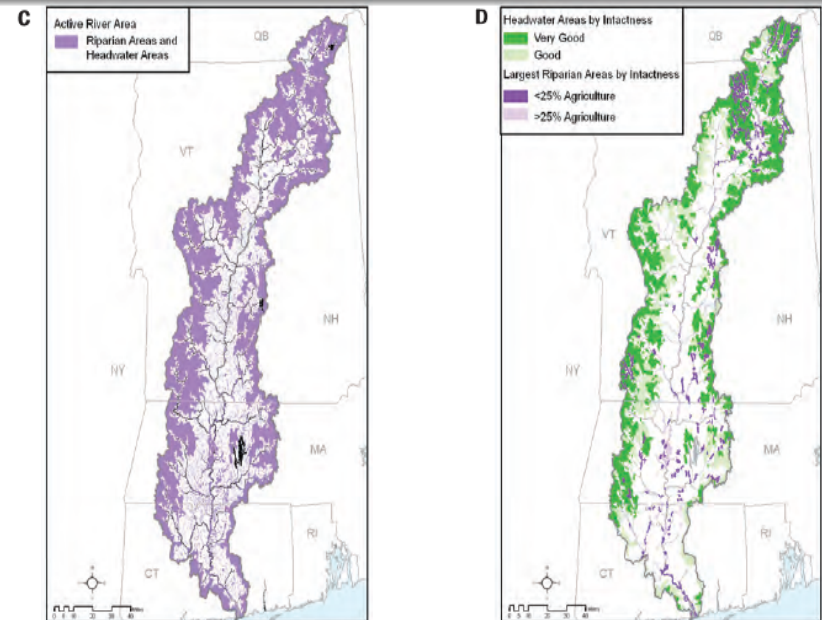
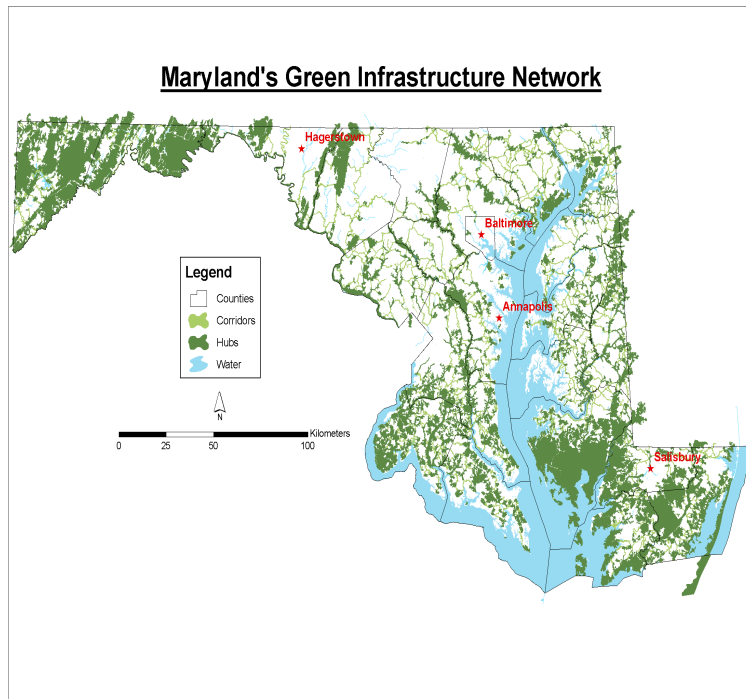


Figure 4.5 – Connecticut River watershed showing: (A) watershed; (B) delineation of the riparian areas of the active river area; (C) delineation of the headwater areas of the active river area; and (D) simple example showing relatively intact areas of the active river area components.

Kentucky Macroinvertebrate Reference sites Wadeable & Headwater Streams

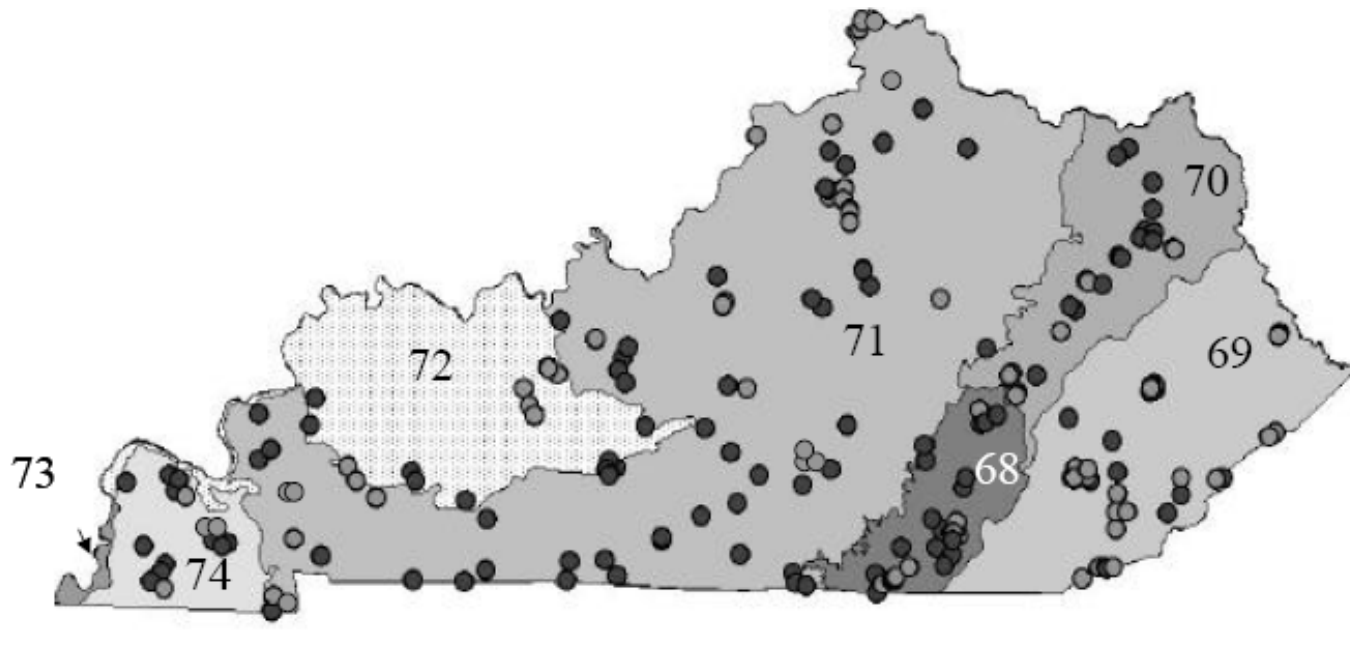
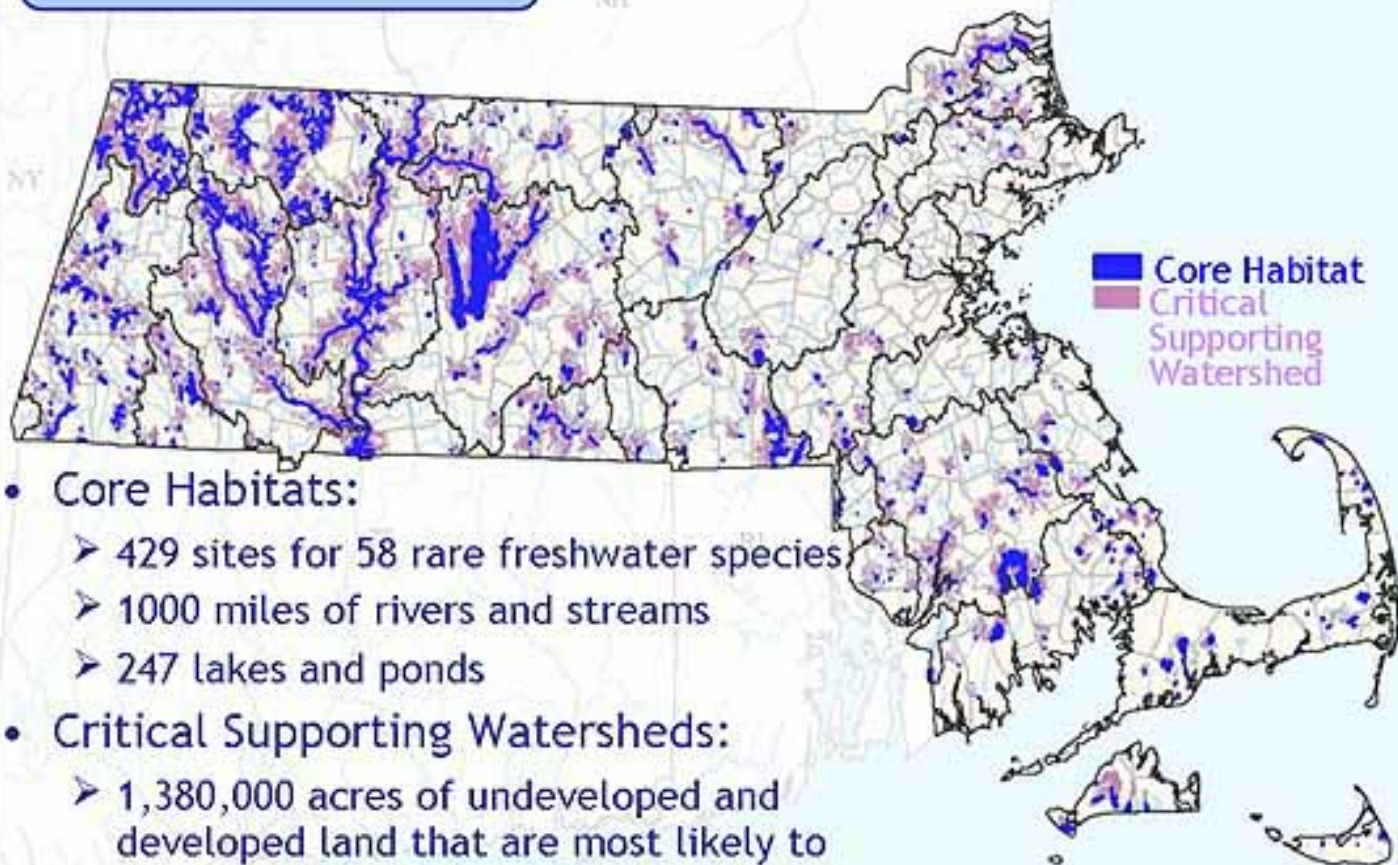


Figure 1a. Map of wadeable (dark circles) and headwater (light circles) reference sites distributed among Level III ecoregions. 68=Southwestern Appalachians, 69=Central Appalachians, 70=Western Allegheny Plateau, 71=Interior Plateau, 72=Interior River Valleys and Hills, 73, Mississippi Alluvial Plains, 74=Mississippi Valley Loess Plains.

Living Waters



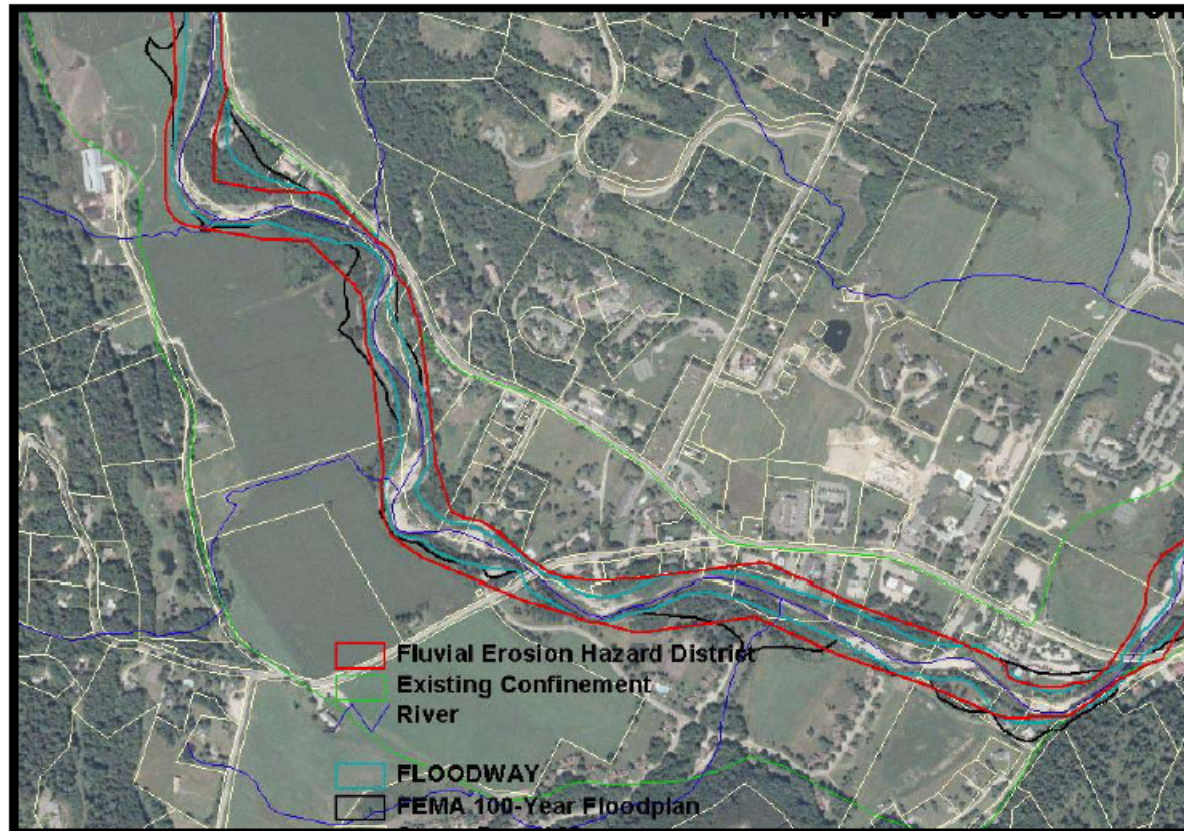
- Core Habitats:
 - 429 sites for 58 rare freshwater species
 - 1000 miles of rivers and streams
 - 247 lakes and ponds
- Critical Supporting Watersheds:
 - 1,380,000 acres of undeveloped and developed land that are most likely to sustain or degrade the Core Habitats

Development of the Hydroecological Integrity Assessment Process for Determining Environmental Flows for New Jersey Streams



Vermont Agency of Natural Resources

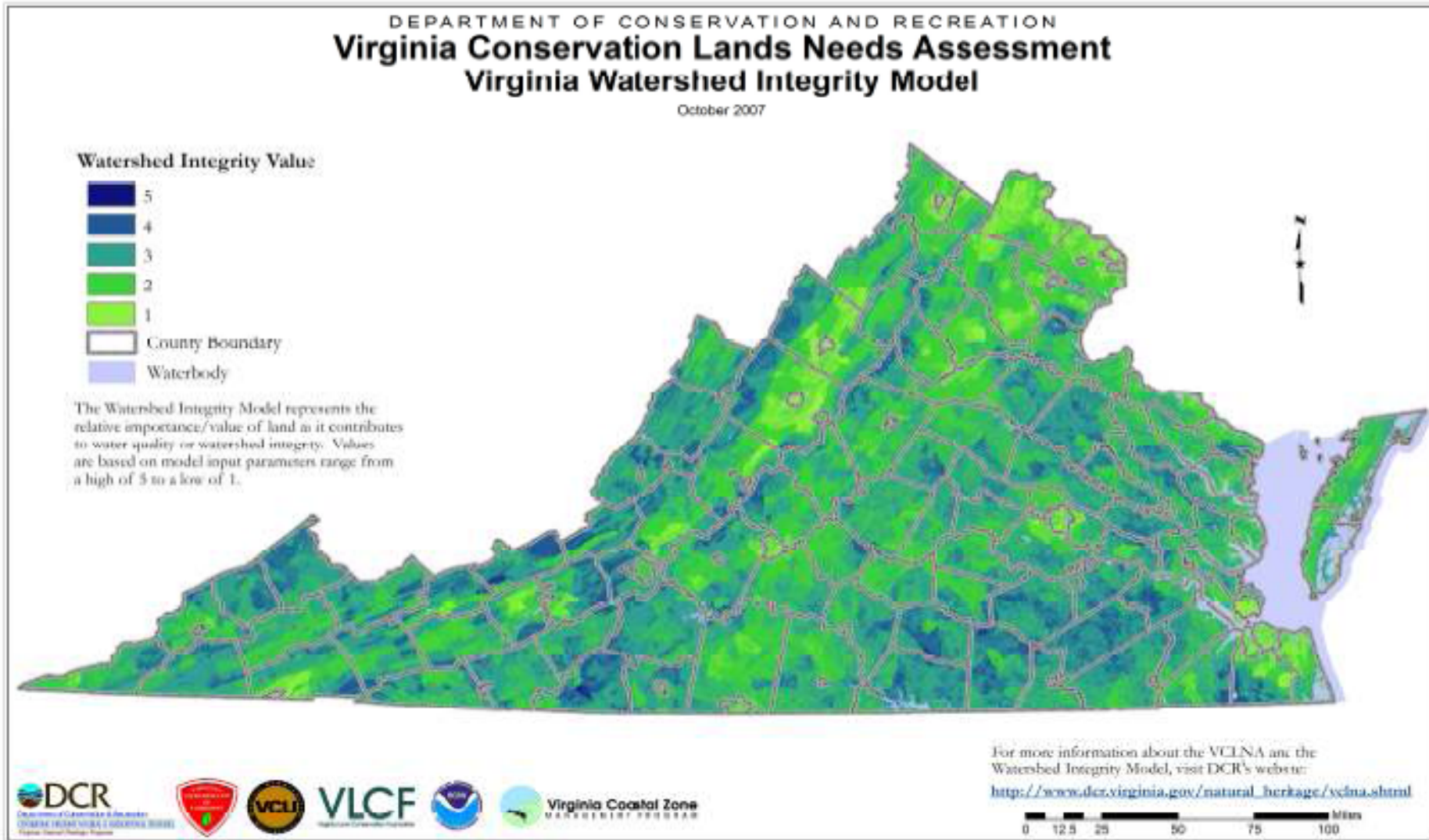
River Corridor Protection Guide



Fluvial Geomorphic-Based Methodology
to Reduce Flood Hazards and Protect Water Quality

Indicators: Headwater Streams & Contributing Areas; Source Water Protection Zones; Ecological Cores; Streams, Shorelines, & Floodplains; Index of Terrestrial Integrity; & Modified Index of Biotic Integrity

Figure 24. Statewide Watershed Integrity Model.



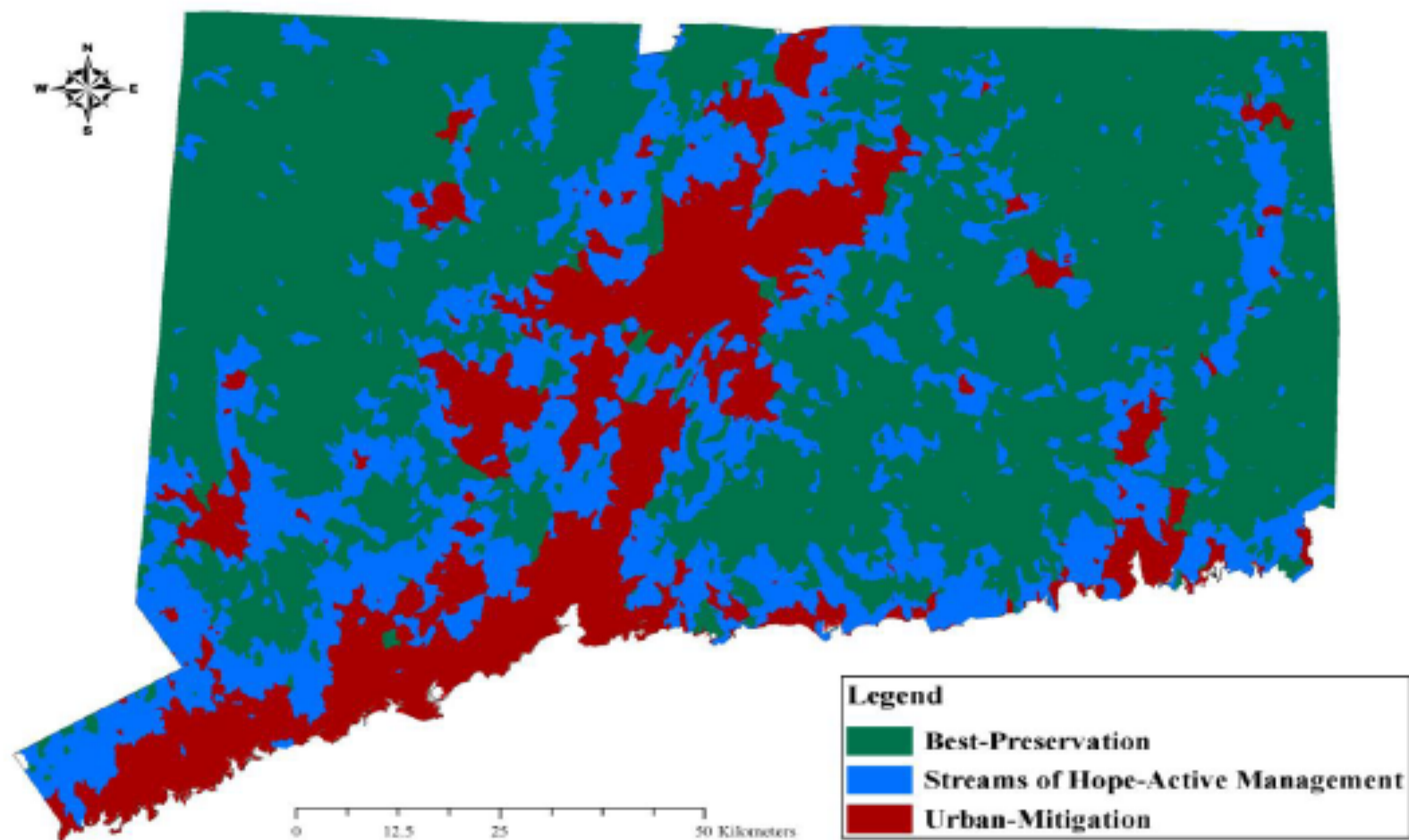


Figure 38. Map of Connecticut showing stream classes and management classes based on the conceptual model in Figure 1. Categories were based on using percent impervious cover calculated using the Impervious Surface Analysis Tool from 2002 Land Cover data and the relationship with macroinvertebrate multimetric index scores. Best-preservation is 0-4.99% impervious cover, streams of hope-active mitigation is 5-11.99% impervious cover and urban-mitigation is >12% impervious cover.

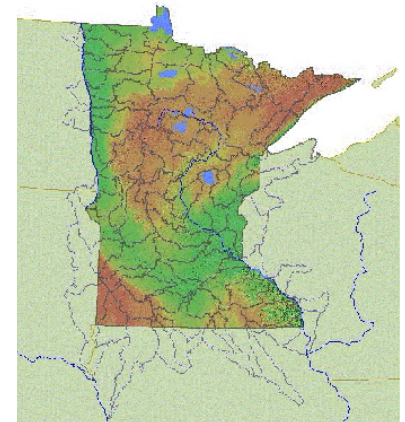
MN Watershed Assessment Tool

The Watershed Assessment Tool (WAT) is a web-based tool for resource managers and others interested in the ecological health of Minnesota's watersheds.

Five components are used to describe the similarities and differences between watersheds.

The five components are:

- Hydrology
- Connectivity
- Biology
- Geomorphology
- Water Quality



How Do We Conserve and Protect Healthy Watersheds?

Habitat Protection

- Vermont River Corridor Protection Program
- Washington Growth Management Act Local Critical Areas Protection Program (e.g., codes, conservation easements)

Tax Credits & Landowner Stewardship

- North Carolina conservation tax credit and landowner stewardship programs
- Virginia Land Preservation Tax Credit (Governor Kaine's by 2010 400,000 acre goal), VA Clean Water Revolving Loan Fund Land Conservation Loan Program

Instream Flow Programs

- Vermont Hydrology Criteria, Maine Instream Flow & Water Level Stds, Connecticut & Washington Streamflow Regulations Proposed
- Michigan's Groundwater Withdrawal Stds & Tool, Ohio ELOHA Water Withdrawal Tool

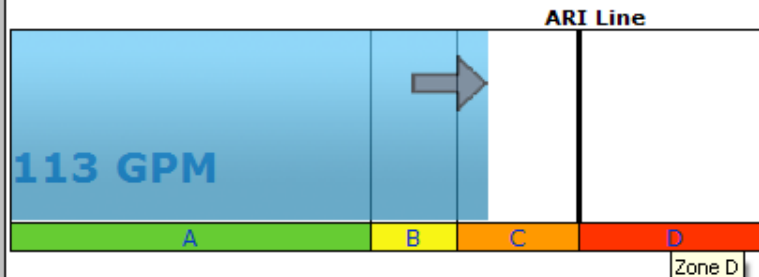
State WQS Antidegradation Programs

Local Watershed Zoning and other protection programs

Water Withdrawal Screening Results

WARNING: For demonstration purpose only..

Adverse Resource Impact (ARI) Graph



The ARI graph above illustrates the estimated removal of water from a nearby stream and its potential for causing an adverse resource impact (ARI).



The proposed withdrawal is in Zone C and is approaching the ARI line.

Screening Results - PASSED

Instructions:

The proposed withdrawal lies within 'Zone C' and is approaching the Adverse Resource Impact line. Please be aware that as proposed withdrawals approach this line, there is an increased likelihood of an adverse resource impact as new water uses begin in the watershed.

Water withdrawals with a capacity of over 70 gpm are required to register with the Michigan Department of Environmental Quality before beginning the withdrawal, and report the actual water use every year.

Additional considerations may apply to a withdrawal in Zone C. Actions necessary to begin a withdrawal in Zone C will be determined after final legislative action.

Actions:

[Help](#)

[Rerun](#)

[Register Now](#)

[Feedback](#)

[Print Report](#)

[Exit](#)

DISCLAIMER:

The Water Withdrawal Assessment Tool is designed to estimate the likely impact of a proposed water withdrawal on nearby streams. It is not an indication of how much groundwater may be available for your use. The quantity and quality of groundwater varies greatly with depth and location. You should consult with a water resources professional or a local well driller about groundwater availability at your location.

WARNING:

This computer program is provided to demonstrate what a water withdrawal assessment tool might look like and how it might operate. It generally follows the recommendations of the Groundwater Conservation Advisory Council. However, the specific allowances and limitations that apply to a particular water withdrawal will be determined after the Legislature adopts changes to the law.

HEALTHY WATERS

A new ecological approach to identifying and protecting healthy waters in Virginia



Progress to Date

- Established Healthy Watersheds Network with the EPA Regions & States
- Coordination with national state organizations, NGO's and other Federal agencies
- Web site epa.gov/healthywatersheds & Fact Sheet
- Draft *Identifying and Protecting Healthy Watersheds: A Technical Guide (1/10)*
 - Key concepts, assessment examples, integrated assessment approach, management approaches

Progress to Date cont.

- Draft HWI National Framework and Action Plan 2010
- Developed HWI performance measures for FY 11 National Water Program Guidance
- Funding for pilot projects

DRAFT

**Healthy Watersheds Initiative:
National Framework and Action Plan
2010**

Protecting and maintaining the aquatic ecological integrity of watersheds and supporting habitat networks to ensure future generations may enjoy these resources and the social and economic benefits they provide



Participating States

New Hampshire Department of Environmental Services
New Hampshire Fish and Game

Connecticut Department of Environmental Protection

Vermont Department of Environmental Conservation

Massachusetts Department of Fish and Game

Massachusetts Executive Office of Energy and Environmental Affairs

Pennsylvania Department of Environmental Protection

Virginia Department of Environmental Quality

Virginia Department of Conservation and Recreation

Maryland Department of Natural Resources

North Carolina Department of Environment and Natural Resources

Mississippi Department of Environmental Quality

Tennessee Wildlife Resources Agency

Michigan Department of Environmental Quality

Wisconsin Department of Natural Resources

Minnesota Pollution Control Agency

Ohio Environmental Protection Agency

Oklahoma Conservation Commission

Louisiana Department of Environmental Quality

Texas Commission on Environmental Quality

Iowa Department of Natural Resources

Kansas Water Office

Utah Department of Environmental Quality

Oregon Department of Environmental Quality

Alaska Department of Environmental Conservation

Alaska Department of Fish and Game

Questions?

