What's new?

About half of the 18 health indices have been *downscaled to the catchment (sub-watershed) level*. This finer resolution divides larger watersheds into smaller hydrological units. This scale helps reveal the dynamic patterns of health occurring within a major watershed. The new *Upstream Tool* shows what land area contributes to the selected catchment, and summarizes land use patterns for that contributing area.

Selected catchment

Upstream area
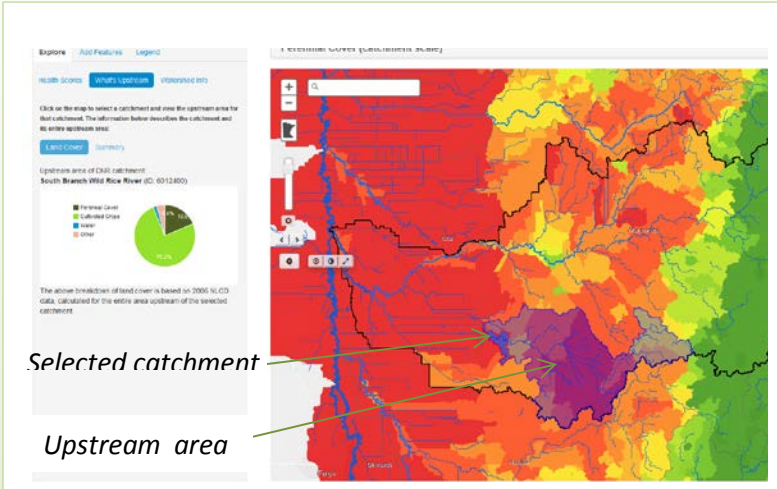
What's next?

The health assessment scores at the statewide, watershed and catchment level will be *re-calculated every five years* to generate trend data reporting the health of Minnesota's watersheds. Index calculations will be *improved with emerging data* whenever feasible.

Guidance documents and *video instruction* for the Watershed Health Assessment Framework are being developed to help apply systems thinking using the health assessment framework. *Enhancements to the online interface* for exploration and interpretation of results are being added. *Check back often to see what's new.*

Visit us now: mndnr.gov/whaf

Watershed Health Assessment Framework Staff:
Beth Knudsen, Watershed Health Assessment Coordinator
MN DNR, Division of Ecological and Water Resources
1801 South Oak Street, Lake City, MN 55041
651-345-3331 ext 228

Zach Tagar, Watershed Health Assessment Resource Analyst
MN DNR, Division of Ecological and Water Resources
500 Lafayette Road, St. Paul, MN 55155
651-259-5167

Watershed Health Assessment Framework Team:
Ian Chisholm, Stream Habitat Program Supervisor
MN DNR, Division of Ecological and Water Resources

Dan O'Shea, Stream Habitat Program, River Ecologist
MN DNR, Division of Ecological and Water Resources

Jan Shaw Wolff, Central Regional Manager
MN DNR, Division of Parks and Trails

Minnesota's Watershed Health Assessment Framework

Why Assess Watershed Health?

The Watershed Health Assessment Framework gives an overview of the ecological health of Minnesota's 81 major watersheds. Like your family physician gathering blood pressure, weight, and body temperature during an annual physical, these rankings indicate areas of concern and areas functioning well.
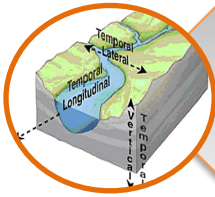
By providing a snapshot of the condition of our natural systems today, this assessment also provides a baseline to discuss how to improve and maintain healthy systems for tomorrow.

Moving forward, the Watershed Health Assessments will report the results from regular check-ups to keep a closer, more informed eye on emerging health trends.

The Watershed Health Assessment Framework (WHAF) puts local natural resource work into a larger context. Five components listed below are used to organize and describe the health of complex ecosystems. Each component holds a suite of health indices that summarize trends in natural resource health across Minnesota.

Each index is:
- Calculated for each HUC8 (Major) watershed; and for each catchment when data resolution allows (examples below).
- Scaled 0-100; low score (red) – high score (green)
- Compiled from statewide data with ongoing collection

All of the index values are combined to create an average watershed score.
This overall pattern helps inform our diagnosis of system health, but like a doctor telling a patient they are in "excellent" or "poor" physical condition, the overall picture is just the first step toward examining the multiple variables that are influencing watershed health.

Hydrology: The inter-relationships and interactions between water and its environment in the hydrological cycle.
INDEX LIST: Perennial Cover   Impervious Cover   Water Use   Hydrologic Storage   Flow variability

Connectivity: The maintenance of pathways that move organisms, energy, and matter throughout the watershed across time and space.
INDEX LIST: Terrestrial Habitat Connections   Aquatic Connections   Riparian Connections

Biology: The condition of living organisms, encompassing the plant and animal species present in the stream, riparian lands, and contributing watershed.
INDEX LIST: Species Richness, Terrestrial Habitat Quality   Stream Species Quality   At-Risk Species Richness
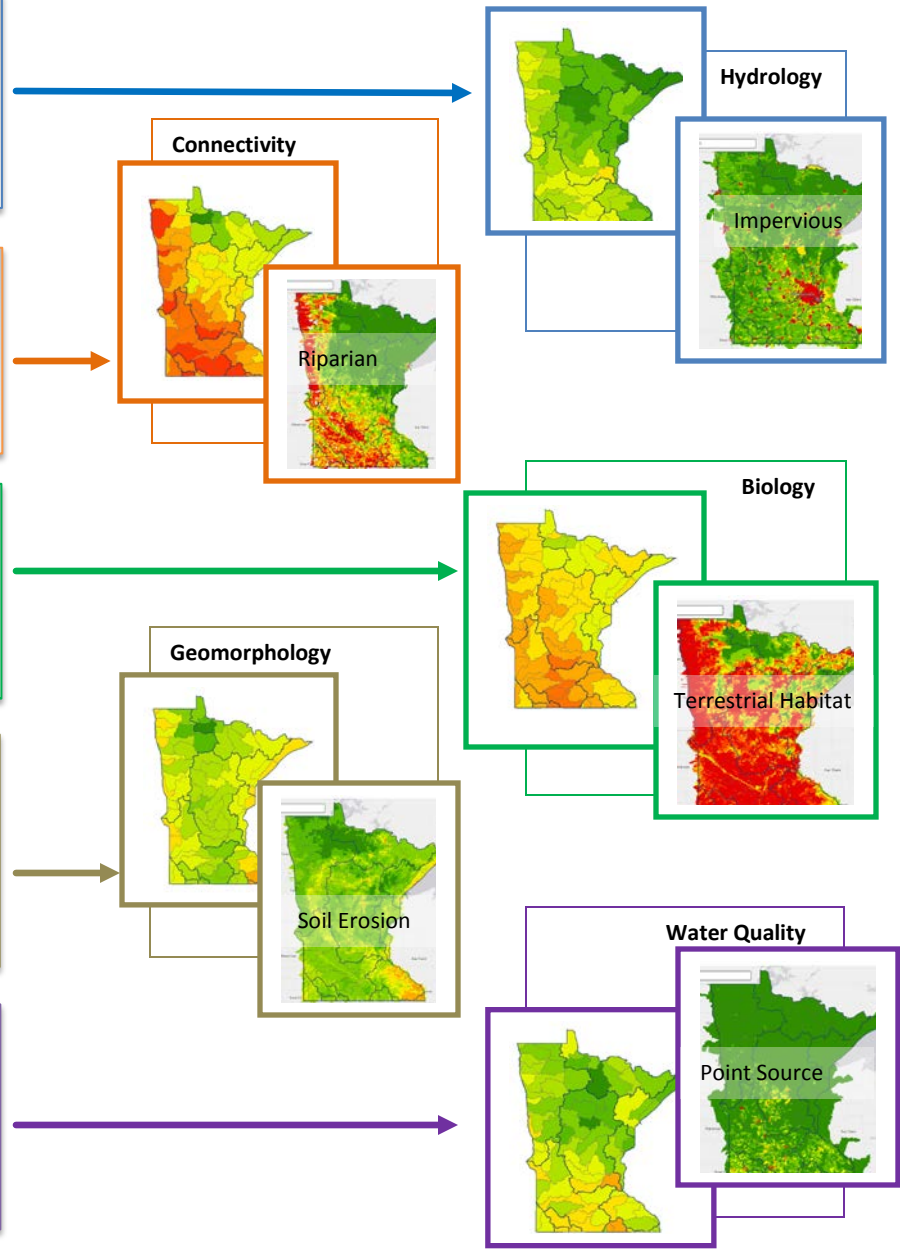
Geomorphology: The state of landscape features; from their origin and evolution to the processes that continue to shape them.
INDEX LIST: Climate Vulnerability   Groundwater Contamination Susceptibility   Soil Erosion Susceptibility
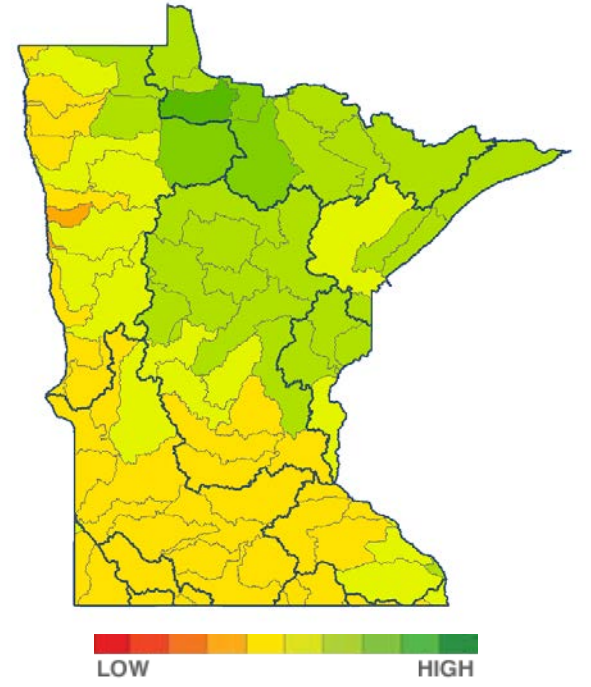
Water Quality: The chemical, biological, and physical characteristics of water; the current condition and future susceptibility of surface water and groundwater to degradation.
INDEX LIST: Non-Point Sources   Point Sources   Water Quality Assessments

Connectivity

Hydrology

Impervious

Riparian

Biology

Terrestrial Habitat

Geomorphology

Soil Erosion

Water Quality

Point Source

LOW   HIGH

Average Watershed Health Score