



Fact Sheet: Recovery Potential Project

Landscape Screening Tools and Resources for Comparing the Restorability of Impaired Waters

Project Goal: Develop methods and tools that help state TMDL and nonpoint source programs consider where best to use limited restoration resources among large numbers of impaired waters and watersheds.

Recovery potential should be a primary consideration in restoration programs whose main aim is to bring about recovery

- Compile information on factors relevant to recovery potential from the technical literature and practitioner experience;
- Apply these findings to develop recovery potential indicators measurable from commonly available geospatial and monitoring data;
- Develop a rapid, flexible recovery potential screening methodology and tools; and
- Help states compare impaired waters recovery potential during restoration planning by using watershed geospatial analysis techniques and aquatic monitoring data.



Recovery Potential is the likelihood of an impaired water to regain Water Quality Standards or other desired condition, given its ecological capacity to gain function, its exposure to stressors, and the social context affecting efforts to improve its condition.

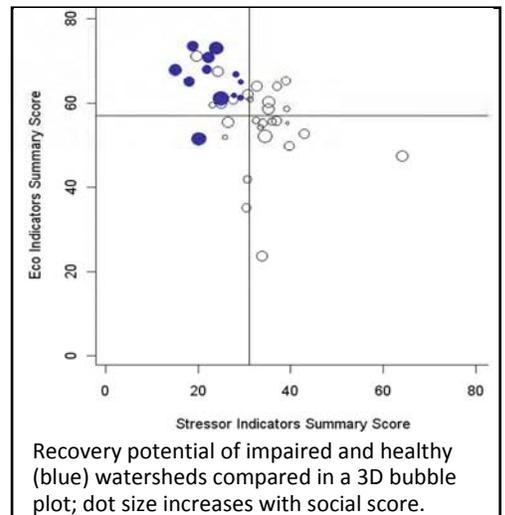
Funding for restoration is always limited, and difficult choices are inevitable. Poor decisions and strategies can result in little or no program success. Comparative methods to aid restoration planning can lead to better-informed investments that restore valued waters earlier, more consistently, more cost-effectively, and in more places. Recovery potential screening enables rapid, statewide comparison of large numbers of waters using ecological, stressor and social indicators of restorability selected for the place and purpose at hand. Recovery potential should be a primary consideration in restoration programs whose aim is to bring about recovery.

Practical Applications of Recovery Potential

- Aid state decisions in 303(d) impaired waters list scheduling for TMDL development, and in TMDL implementation;
- Assist in restoration-related decisions regarding Clean Water Act Section 319 nonpoint source control projects as well as state-level restoration initiatives;
- Help EPA regions and states develop strategies to meet performance tracking measures, such as identifying where increases in restored waters and improved watersheds can most likely be achieved;
- Assist watershed-level programs that need to focus on priority places due to limited resources; and
- Reveal underlying factors that influence restoration success and use these new insights to improve programs.

Recovery Potential Tools and Resources for Restoration Practitioners

- **Recovery Potential Screening Methodology:** A rapid, comparative assessment approach that uses commonly available datasets to screen user-selected indicators that influence restorability. Integrates three sub-indices (ecological, stressor, social) that relate to the three major drivers affecting recovery potential.
- **Recovery Potential Indicators** (see examples on back): Ecological capacity, stressor exposure, and social context traits measurable from common datasets. 130+ metrics demonstrated, 60+ with reference sheets on their scientific basis and measurement.
- **Restoration and Recovery Literature Database:** 1700+ published citations in a partially annotated MS Access database; open for each user's personal option to add entries and keywords on a local copy.
- **Tools for Scoring and Displaying Results:** A programmed data spreadsheet that weights and normalizes indicators and auto-calculates summary scores; a tool for visualizing screening results as 3D bubble plots (right); measurement methods and data sources for indicators; and more.
- **Recovery Potential User Support Website:** Central source of step-by-step screening directions, literature database, indicator reference sheets, auto-scoring spreadsheet, 3D bubble plotting tool, training materials, case studies, other resources. [Draft website http://hudson.tetrattech-ffx.com/RECOVERY_POTENTIAL/]



Recovery potential of impaired and healthy (blue) watersheds compared in a 3D bubble plot; dot size increases with social score.

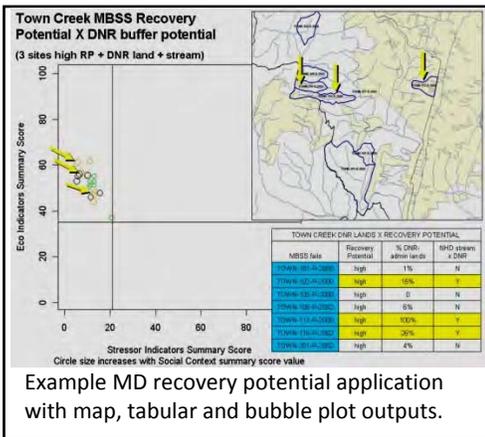
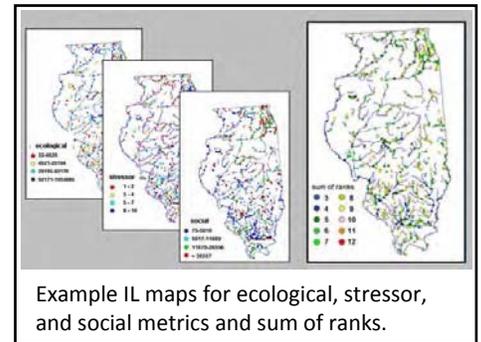
Example Recovery Potential Indicators
(user selects 3 to 8 metrics in each class most relevant to the place and purpose of the screening)

<u>Ecological Capacity Metrics</u>	<u>Stressor Exposure Metrics</u>	<u>Social Context Metrics</u>
natural channel form	invasive species risk	watershed % protected land
recolonization access	channelization	applicable regulation
Strahler stream order	hydrologic alteration	funding eligibility
rare taxa presence	aquatic barriers	303(d) schedule priority
historical species occurrence	corridor road crossings	estimated restoration cost
species range factor	corridor road density	certainty of causal linkages
elevation	corridor % U-index	TMDL or other plan existence
corridor % forest	corridor % agriculture	university proximity
corridor % woody vegetation	corridor % urban	certainty of restoration practices
corridor slope	corridor % impervious surface	watershed organizational leadership
bank stability/soils	watershed % U index	watershed collaboration
bank stability/woody vegetation	watershed road density	large watershed management potential
watershed size	watershed % agriculture	government agency involvement
watershed % forest	watershed % tile-drained cropland	local socio-economic conditions
watershed % wetlands	watershed % urban	landownership complexity
proximity to green infrastructure hub	watershed % impervious surface	jurisdictional complexity
contiguity w/green infrastructure corridor	severity of 303(d) listed causes	valued ecological attribute
biotic community integrity	severity of loading	human health and safety
flow regime	past land use change trajectory	recreational resource

Example Watershed, State and Regional Scale Projects

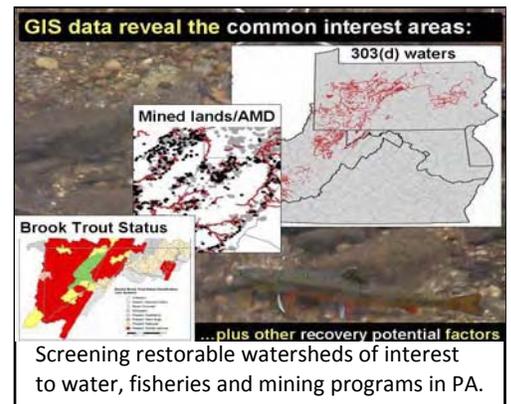
Illinois Pilot Study

- screened the recovery potential of 723 impaired waters in a statewide comparison
- developed, measured and mapped 104 ecological, stressor and social indicators of recovery potential
- compared several priority-setting methods and alternatives



Maryland Watershed Screening

- staged screening at two watershed scales
- informed TMDL impaired waters and nonpoint source program strategies on relative restorability among watersheds, ecoregionally and statewide
- screened finer-scale subwatersheds in 10 priority watersheds to help inform best management practice implementation options



Middle Atlantic Native Fisheries Recovery Screening

- screening in four states identified possible native fish habitat restorations of interest to three programs (303(d), abandoned minelands, fisheries)
- demonstrated very rapid statewide recovery screening to address a narrowly focused issue
- stimulated cross-program collaboration and restoration investments in PA

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