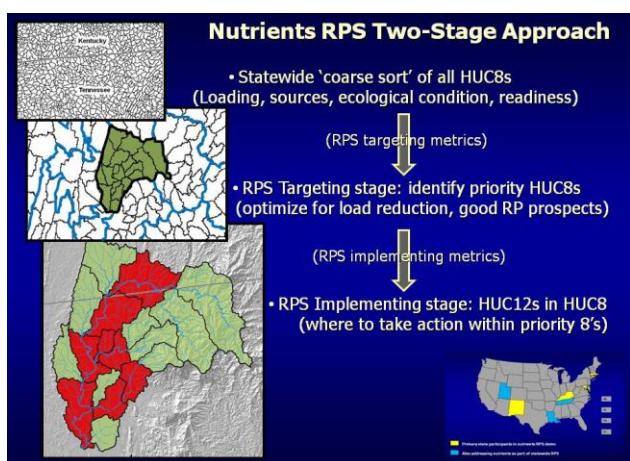


Recovery Potential Screening Factors and Nutrient Management

Recovery Potential Screening (RPS) is a screening method for comparing the relative restorability of large numbers of watersheds (e.g., across a state). This is a method that measures several ecological, stressor, and social context indicators that are associated with the likelihood of successful restoration efforts in the watershed. The user selects the indicators based on what is most appropriate to the waters being assessed and their surrounding communities, the availability of quality data, and the program's goals. Measuring the same RPS indicators on all watersheds allows for systematic, even-handed and information-based comparison. Calculating separate ecological, stressor, and social indices enables the user to consider each of these three classes of factors individually or in combination. The ecological index score reflects overall condition and the capacity of the watershed to regain functionality, based on metrics related to natural watershed processes and structure. The stressor score reflects the pressures on watershed condition from several primary sources of pollutants and water quality impairments. The social context score includes many factors, such as community involvement, incentives, economics, governance, regulation, and planning status, that do not constitute watershed condition but strongly influence the level of effort and complexity of making improvements. A Recovery Potential Integrated (RPI) score is calculated by combining these three indices.



RPS projects, initiated by state water programs and assisted by EPA, have now occurred in 15 states. Several states currently are teaming with EPA specifically to demonstrate the tool's application to comparing and prioritizing watersheds for nutrient management. In brief, the project compares watersheds using a variety of restorability-relevant factors (e.g., ecological condition and functionality; stressor magnitude and exposure; social context affecting restoration level of effort) and nutrients-relevant factors (e.g., nutrient types, sources, and impacts; load magnitude).

The RPS nutrients project approach (see figure) is conducted in two stages using HUC8s and HUC12s. The two complementary scales of watersheds are screened differently, and in a staged manner. All HUC8s are screened and compared statewide in the first stage with a minimal set of metrics to identify watersheds that generate high nutrient loads and also have traits associated with greater restorability. This targeting stage is meant to help reveal that, whereas HUC A and HUC B may have the same high estimated nutrient loads, HUC B may be a better choice for action due to the restorability factors. A subset of priority HUC8s is identified in this stage. The second, implementing stage screens the HUC12s within each priority HUC8 relative to one another, and uses more specific indicators selected to help reveal which HUC12s may be responsive to efforts to reduce the HUC8's nutrient loads. Statewide HUC12 screening and comparison is also possible as HUC12-scale metrics are being compiled statewide.

Nutrients-relevant metrics that are being compiled in this project use nationally available data sources almost without exception and thus may be available for use in other states and other types of watershed comparisons. Some examples include:

National Ecological Framework % (HUC8, HUC12): Compiled nationally by EPA Region 4, this dataset provides a nationally consistent ecological condition metric that is watershed and corridor oriented and is likely associated with natural nutrient processing and filtering. The metric combines elements of natural vegetative cover, proximity to water, and wetness index as a percent of HUC total area.

Sources of N Input (HUC8): Six national HUC8 coverages of estimated N Input coming from primary N sources (Atmospheric deposition, Fertilizer Application, CAFOs, Biological N Fixation by Crops, BNF by Non-Cropland, Industrial Sources and Municipal Waste) developed by EPA's Office of Research and Development, Western Ecology Division. This study also generated HUC8 metrics on the ratio of current total N inputs to estimated pre-European N inputs.

Other relevant metrics (mainly HUC12): Several other metrics frequently used in RPS analyses are nutrients-relevant. In particular, some ecological and social context metrics may complement and diversify the use of loading-related stressor metrics. Examples include: NFHP fish habitat condition index; % forest maintenance; watershed % steep slope agriculture; corridor % agriculture; conservation program participation rate; watershed plan status; source water protection area %; and funding eligibility. See the table below for more about the general categories of metrics used in RPS projects. For more detail on over 250 specific indicators within these classes and subclasses, see the RPS website or contact norton.douglas@epa.gov in the EPA Office of Wetlands, Oceans and Watersheds.

RPS CLASS	Metric Subclass
Ecological	Watershed natural structure
Ecological	Corridor and shorelands stability
Ecological	Flow and channel dynamics
Ecological	Biotic community integrity
Ecological	Aquatic connectivity
Ecological	Ecological history
Stressor	Watershed-level disturbance
Stressor	Corridor and shorelands disturbance
Stressor	Hydrologic alteration
Stressor	Biotic or climatic risks
Stressor	Severity of pollutant loading
Stressor	Legacy of past, trajectory of future land use
Social	Leadership, organization and engagement
Social	Protective ownership or regulation
Social	Level of information, certainty and planning
Social	Restoration cost, difficulty, or complexity
Social	Socio-economic considerations
Social	Human health, beneficial uses, recognition and incentives