Recovery Potential Metrics
Summary Form

Indicator Name: SEVERITY/STRESSOR PERSISTENCE

Type: Stressor Exposure

Rationale/Relevance to Recovery Potential: Stressors causing impairment can vary considerably in their likelihood to persist over long periods, or to naturally dissipate. This can be due to the nature of the stressor itself (e.g., radionuclides), its source (e.g., unremediated acid mine drainage), or its setting (e.g., excess fine sediment persistence in lower gradient streams). Comparison of recovery potential across many watersheds can consider differences in persistence across different stressor types and settings.

How Measured: Methods for measurement would be project-specific, and differ with the stressors included. One option for developing persistence metrics involving different stressors and settings is to use high/medium/low categories specific to each stressor.

Data Source: Project-specific.

Indicator Status (check one or more)
___x__ Developmental concept.
___x___ Plausible relationship to recovery.
_____ Single documentation in literature or practice.
___x__ Multiple documentation in literature or practice.
_____ Quantification.

Comments:

Supporting Literature (abbrev. citations and points made):

- (Novotny et al., 2005) The models [for assessing ecological integrity] (functions) link the individual risks and consider their synergy, addictivity, or antagonism. The risks include:
  - (1) Pollutant (chemical) risks, acute and chronic, in the water column
    Key metrics: Priority (toxic) pollutants, DO, turbidity (suspended sediment), temperature, pH.
  - (2) Pollutant risk (primarily chronic) in sediment
    Key metrics: Priority pollutants, ammonium, DO in the interstitial layer (anoxic/anaerobic or aerobic), organic and clay content.
  - (3) Habitat degradation risk
    Key metrics: Texture of the sediment, clay and organic contents, embeddedness, pools and riffle structure, bank stability, riparian zone quality, channelization and other stream modifications.
  - (4) Fragmentation risk
    Key metrics:
    Longitudinal—presence of dams, drop steps, impassable culverts.
    Lateral—Lining, embankments, loss of riparian habitat (included in the habitat evaluation), reduction or elimination of refugia.
    Vertical—lack of stream-groundwater interchange, bottom scouring by barge traffic, thermal stratification/heated discharges, bottom lined channel (190).

- (Palik et al., 2000) RPI integrates information on ecosystem conservation status (historical vs. current rarity), with effort to restore a selected polygon to a reference condition. Our assumption for the latter is that cost to restore a disturbed site to the reference condition increases as degree of dissimilarity to the reference ecosystem increases (194).