

Recovery Potential Screening for Prioritizing Restoration in Maryland Watersheds

Janies D. Wickham, Douglas Norton, Gregorio Sandi, Timothy Wade, Lee Currey, Paul Emmart, and James George

States' responsibilities under the Clean Water Act include identifying impaired waters (those not achieving Water Quality Standards) and ultimately restoring them. The high numbers of impaired waters in most states calls for yearly priority-setting decisions on restoration funding. Systematic methods and consistent data can help make the decision process more even-handed and defensible, as well as guide efforts toward waters that are more likely to recover once restoration actions are implemented. The Maryland Department of Environment (MDE) and the US Environmental Protection Agency have developed methods to compare recovery potential of impaired waters and explore priority setting options based on that potential. Though difficult to define precisely, recovery potential includes the ecological capacity to regain lost functionality, its exposure to stressors, and the social context affecting efforts to improve condition. Measurements of recovery potential were developed using common GIS datasets and biological data supplied by MOE, and included each of the three main recovery potential themes (ecological capacity, stressors, and social context). MDE assesses impairment by watershed rather than for an individual waterbody. Impairment is determined by pooling scores for benthic and fish indices of biotic integrity (IBI) collected for smaller 'monitoring' watersheds that are nested within the larger 'management' watersheds for which impairment is determined. 'Management' watersheds labeled as impaired could contain a few 'monitoring' watersheds with passing IBI scores; and, conversely, 'management' watersheds labeled as passing could contain a few 'monitoring' watersheds with failing IBI scores. Recovery potential analyses were conducted at both the 'monitoring' and 'management' watershed scales. Orthogonal measures summarized for each of the three main recovery potential themes were used identify watersheds with relatively high ecological capacity and social context scores and a relatively low stressor score. Since the dataset included both impaired and passing watersheds (at both scales), recovery potential could be evaluated based on the 'distances' between impaired and 'healthy' watersheds. MOE is evaluating recovery potential for prioritizing restoration activities.