

Restoration As Mitigation: Analysis of Stream Mitigation for Coal Mining Impacts in Southern Appalachia

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Abstract:

Compensatory mitigation is commonly used to replace aquatic natural resources being lost or degraded but little is known about the success of stream mitigation. This article presents a synthesis of information about 434 stream mitigation projects from 117 permits for surface mining in Appalachia. Data from annual monitoring reports indicate that the ratio of lengths of stream impacted to lengths of stream mitigation projects were <1 for many projects, and most mitigation was implemented on perennial streams while most impacts were to ephemeral and intermittent streams. Regulatory requirements for assessing project outcome were minimal; visual assessments were the most common and 97% of the projects reported suboptimal or marginal habitat even after 5 years of monitoring. Less than a third of the projects provided biotic or chemical data; most of these were impaired with biotic indices below state standards and stream conductivity exceeding federal water quality criteria. Levels of selenium known to impair aquatic life were reported in 7 of the 11 projects that provided Se data. Overall, the data show that mitigation efforts being implemented in southern Appalachia for coal mining are not meeting the objectives of the Clean Water Act to replace lost or degraded streams ecosystems and their functions.

Access the article at: <http://pubs.acs.org/doi/abs/10.1021/es503052f> [1]

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