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RESOURCE

Methods for cumulative effects assessment

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Description / Abstract

A variety of methodological tools are available to analyze and assess cumulative effects. This article develops a classification of methods for cumulative effects assessment, and evaluates them using criteria derived from recently proposed conceptual frameworks of cumulative environmental change. The classification differentiates two broad approaches. Analytical approaches include spatial analysis, network analysis, biogeographic analysis, interactive matrices, ecological modeling, and expert opinion. Planning approaches are classified into multi-criteria evaluation, programming models, land suitability evaluation, and process guidelines. Selected methods of CEA are evaluated for their ability to consider multiple perturbations, additive and interactive pathways of accumulation, and different types of cumulative effects. Geographic information systems, landscape analysis, and simulation modeling are shown to be useful methods of CEA. Loop analysis and cause-effect diagramming serve mainly as heuristic devices. A challenge for future methodological development is the design and testing of methods that incorporate processes of cumulative environmental change.

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