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Quantifying Natural Resource Injuries and Ecological Service Reductions: Challenges and Opportunities

Abstract

The natural resource damage assessment (NRDA) provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Oil Pollution Act (OPA) are complex and have been difficult to implement. The complexity and difficulty in implementation arise both from the assessment procedures specified in agency NRDA guidance and from the limited ability of ecologists to quantify impacts of hazardous substances on natural resources. This paper explores the scientific aspects of NRDA implementation, and discusses conceptual and methodological relationships between NRDA and the much broader field of ecological risk assessment (ERA). We discuss three critical components of the NRDA assessment approach: measuring natural resource injuries and reductions in resource services; evaluating causality; and establishing baseline conditions. We identify (1) specific approaches drawn from ERA practice that could improve each of these components, and (2) research needs and institutional changes that may improve the ability of the NRDA process to achieve its stated objectives. We recommend the acceleration of the ongoing dialogue among NRDA practitioners from the Trustee and PRP communities as a first step toward resolving the procedural and technical deficiencies of the NRDA process.



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