

Integrating Information for Environmental Decision Making

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Resource managers and decision makers clamor for better scientific information in an environmental crisis, and science agencies strive to produce better information in a timely fashion. However, research on the use of information in decision making reveals that in any real-world situation, there always seems to be too much information but not enough pertinent information. Existing information is frequently not integrated and is inevitably designed to address a previous crisis. Even if a particular project succeeds in integrating a large number of datasets, the integrated information may not necessarily be useful in future studies. Information has a short half-life.

This presentation reports on a social science research project that examined the context surrounding the creation of a shared regional database of rivers and streams in the Pacific Northwest salmon crisis in the late 1990s. This database, which formed the backbone for integrating watershed information from many different scientific disciplines, was essential to show the geographic context of habitat problems in the region's watersheds and to display different management scenarios. Federal, state, and local government agencies, Native American tribes, private companies and non-governmental organizations participated in this project. Project analysis reveals that integrating and maintaining different types of information that had been collected piecemeal over the years by these many different groups created both opportunities and problems.

The process of shared database creation forged new and lasting relationships among organizations that had historically not cooperated. Difficulties were encountered in the formalization process due to strong linkages between local disciplinary practices and data creation; in the deployment of standards; in eliciting buy-in for Internet-based forms of participation; and in envisioning situations in which users might need to become creators of data and thus have ownership and partial control of the database.

This case study demonstrates that opportunities and problems are applicable to most large-scale data-and-information integration projects, and that engaging social scientists in the construction of these systems is essential.