Authors
Fraser Shilling[1], *Sari Sommarstrom*[1], *Rick Kattelmann*[1], *Joan Florsheim*[1], *Russ Henly*[2], *Barbara Washburn*[3] 1-- University of California, Davis, CA 95616; 2 -- Fire and Resource Assessment Program, Department of Forestry and Fire Protection Sacramento, CA 94244-2460; 3 -- Ecotoxicology Unit, Office of Environmental Health Hazard Assessment, Sacramento, CA 95812-4010

Technical Editor
Kathryn Ankrum

Cover Photograph
Rick Kattelmann
Muir Woods

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Watershed Assessment in California

Watersheds by their nature are fluid and complex, making it difficult to fully understand their processes and conditions. Understanding watersheds in California is all the more challenging, due to the state's exceptionally diverse array of geographic and hydrologic conditions, which is overlain by an equally diverse set of social and economic conditions. Watersheds include the land surrounding a river or stream. When it rains, substances in the watershed get washed off and can end up as pollution in the waterway and finally the ocean. Since we all live in a watershed, we all have a voice on what is at stake for future activities in the watershed.

"Watershed assessment" is one method used to understand a watershed. It is a process for evaluating how well a watershed is functioning. Watershed assessments may include identifying important issues, examining historic conditions, evaluating present conditions and processes, and determining the effects of human activities. It can mean describing the parts and processes of the whole watershed and analyzing their functioning in general, or relative to some standard (such as a water quality standard or historic condition). It also can mean focusing on particular concerns about human activities, conditions, or processes in the watershed.

The California Watershed Assessment Manual provides a series of standard approaches that assist watershed assessors, and those guiding assessments, in planning and carrying out watershed assessments. These approaches are appropriate for a variety of watershed stakeholders, including members of watershed groups, agency representatives, landowners, scientists, members of the academic community, business representatives, and consultants.

Contents of the California Watershed Assessment Manual

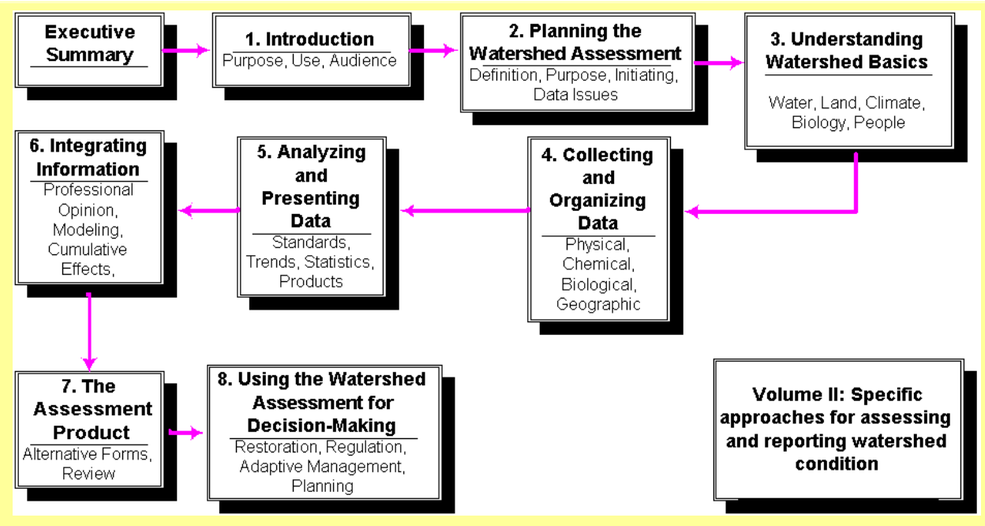
While the Manual is not prescriptive, it is thorough. It presents a comprehensive view of the watershed assessment process, with specific guidance on starting the process, putting together an integrated assessment team, determining the assessment's purpose, planning and conducting the assessment work, and completing the assessment report. The Manual also describes the basics of watershed functioning, thus laying a foundation for understanding the rest of the Manual and watersheds generally. It lays out methods for defining the assessment's boundaries, for determining how complex the analysis should be, and for identifying gaps in data, knowledge, or analysis. It provides methods for gathering, managing, analyzing, and presenting data, and it suggests approaches for integrating information in order to better understand watershed conditions. The Manual describes ways to present the assessment and to use it to support decision-making and adaptive management.

California Watershed Assessment Manual Structure

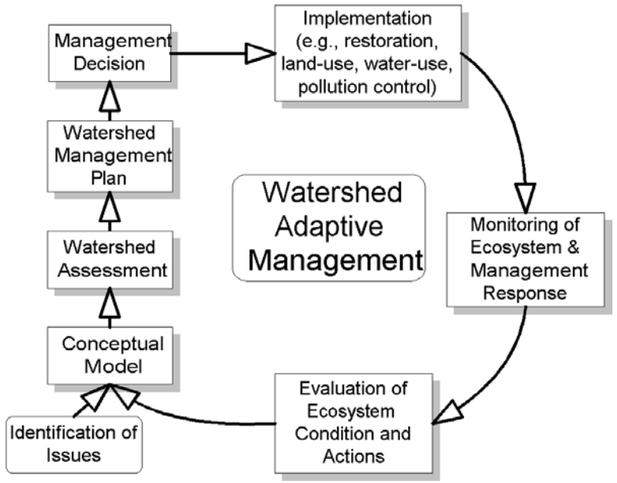
The "Manual" currently contains 8 chapters. These flow from the introductory chapter (1), through chapters describing the details of assessment planning (2), fundamentals of watershed functioning (3), data collection (4), data analysis (5), and data integration (6). Chapter 7 gives details on how to structure an assessment report; and chapter 8 describes connecting the assessment with decision-making.

California Watershed Assessment Guide

The "Guide" is a shorter version of the Manual and is an introduction to many of the ideas and approaches described in the Manual. The 40-page Guide is structured very similarly to the Manual. It is not intended to support watershed assessment by itself; it is a doorway to the Manual and to the principles of effective watershed assessment.



Structure of the California Watershed Assessment Manual



Watershed Adaptive Management

Effective watershed assessment should be linked directly to the actions that are taking place, or can be taken to improve watershed condition. Some of these will be restoration actions (e.g., increasing vegetation on denuded slopes), certain ones will be related to land-use (e.g., zoning of certain areas for watershed protection), and others will be monitoring and evaluation of conditions and the management actions themselves.

There is a growing understanding that watershed adaptive management involves monitoring our actions and the responses of the ecosystems and human systems we impact. This often involves the selection of factors that are particularly influential on the ecosystem (e.g., water collection and diversion) or responsive to the actions (e.g., native aquatic biota). These factors are often called “indicators” when applied to natural and social processes and attributes, or “performance measures” when applied to management actions. Whatever you call them, the selection of a set of these indicators or measures is important in deciding what to monitor and assess.

Linking Assessment with Decisions

A complete watershed assessment will inform decisions being made in the watershed by land and water managers and regulators. What is not always obvious is how to link assessment of ecological and social conditions to these decisions. The approaches in the Manual are one way to do this in the context of adaptive management. We hope you find them useful.

The California Watershed Assessment Manual and the California Watershed Assessment Guide can be downloaded from our website, http://cwam.ucdavis.edu

Printed and CD copies of CWAM and CWAG should be available by mid-2005. Check our website for availability.

Rick Kattelmann

Contact: Fraser Shilling; 530-752-7859
fmshilling@ucdavis.edu

Chris Keithley; 916-445-5344
Chris.Keithley@fire.ca.gov

http://cwam.ucdavis.edu