

California Groundwater Management

A slate of distinguished California geologists, hydrologists, attorneys, and policymakers has updated and expanded the original 1997 edition of *California Groundwater Management* to incorporate recent legal and regulatory changes and to make this second edition of the handbook more accessible overall through reorganization and increased use of graphics and sidebars.

The book begins with an introduction to California groundwater management and the physical, geological, and hydrological settings of the state, followed by an overview of groundwater hydrology that is broad enough to be meaningful to anyone seeking a basic understanding of the subject. Subsequent chapters discuss groundwater quality, including natural and anthropogenic contaminants and their sources, and the means to protect

groundwater quality. The information draws on examples from California, but has application beyond the state's boundaries.

The book also discusses in detail how to develop and implement a groundwater management plan, including setting up a schedule and budget, working with the public and agencies, outlining the plan, obtaining technical information, and finally implementing the plan. Any state that does not yet have its own groundwater management plan finalized would benefit greatly from this information.

Later chapters provide a useful and clearly presented primer on California groundwater law and rights, and groundwater management institutions and mechanisms. The work concludes with an overview of

tools and technologies available to study, evaluate, and manage groundwater. The list of tools is lengthy and discussions

are necessarily cursory, but ample sources for additional information are provided.

The target audience of *California Groundwater Management* is broad: the publisher's website states that the book is "a valuable resource for groundwater scientists, engineers, attorneys, regulators, administrators, and

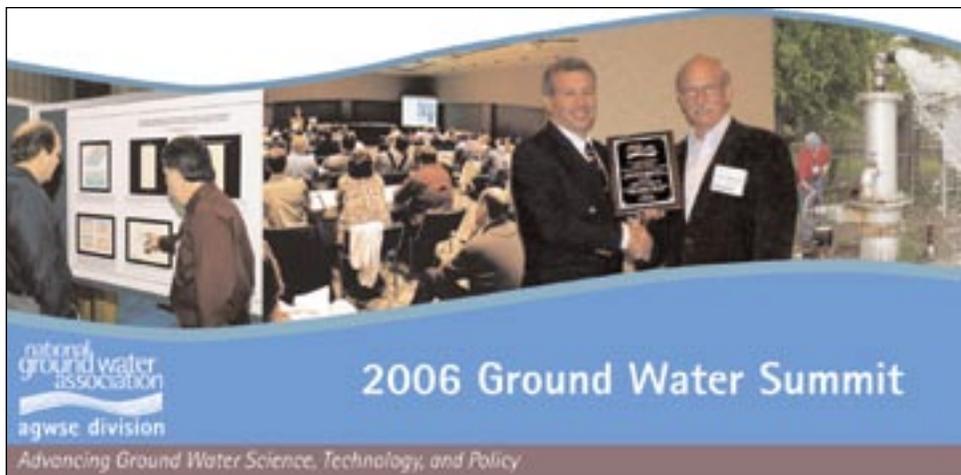
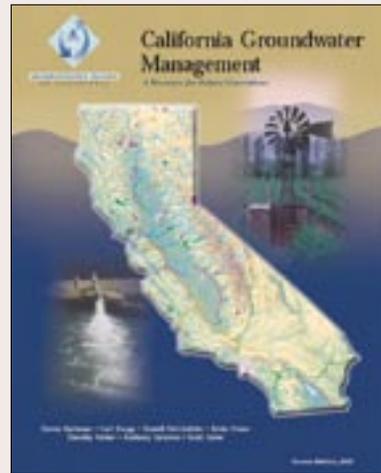
laypeople alike." Addressing such a diverse group is a challenge, but the generous use of sidebars and references—that explain complex issues, summarize important points, and offer sources of more detailed information—greatly enhance the utility of the book. The main text is written at a fairly basic level of understanding, and while some scientists might think the hydrology is oversimplified, they may well appreciate the clear, simple treatment that California water law is given, just as policy and legal experts may appreciate the hydrology primer. With this approach, all the parties that need to come together to create sound management policy might finally be able to understand each other.

California Groundwater Management is well-written and well-organized. While it may not succeed in being all things to all people, the book certainly offers abundant information that will be useful to many.

Order *California Groundwater Management*, published in 2005 by the Groundwater Resources Association of California, at www.grac.org/book.asp. The cost is \$75 for GRAC members and \$90 for nonmembers.

Rescuing Water Markets: Lessons from Owens Valley

The Property and Environment Research Center (PERC) in Bozeman, Montana published this report a year ago as part of the PERC Policy Series on markets



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The 2006 Ground Water Summit will allow a means for scientists and engineers to exchange technical information and new science developments, as well as discuss policy and regulatory issues pertaining to ground water. In addition to sessions, there will be field trips, poster presentations, distinguished lecturers, Darcy forum, student mentoring program, and so much more. So save the date and plan to attend the second annual Summit next spring.

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and environmental issues. In the early twentieth century, Los Angeles purchased water rights by buying up farmland in eastern California's Owens Valley and conveying the water to Los Angeles. These purchases created a legacy of distrust and suspicion, as people over time began to view the trades as theft. Memorialized in the 1974 film, "Chinatown," the image of the Owens Valley trades has cast a shadow on water trading ever since—even when the goal of trades is environmental protection. In this report, Gary Libecap revisits the Los Angeles-Owens Valley transfers and suggests that the actual events have become distorted in the retelling. But he also reveals the genuine problems that surrounded the negotiations and applies the lessons learned to water trades today.

The 32-page report, published in 2005, is available under the policy series of the PERC publication library at www.perc.org.

Groundwater Sampling and Monitoring with Direct Push Technologies

This EPA guidance document focuses on direct push technology (DPT) groundwater sampling issues. It addresses two sampling methods: point-in-time and grab sampling. The cost-saving potential of DPT groundwater sampling technologies coupled with a rapid method of analysis provides new defensible opportunities for making site decisions and an efficient project management tool for on-site activities.

This guidance summarizes DPT groundwater sampling methods, the relevant data quality objectives, recommended methods for collecting representative groundwater samples, and recommended methods for minimizing the potential for cross-contamination. It is intended for environmental professionals who have basic scientific understanding of groundwater sampling and DPT equipment and should be used with existing resources and initiatives that support the adoption of a dynamic field activity approach.

The 78-page report, EPA 540-R-04-005, is available at www.epa.gov/superfund/programs/dfa/dirtech.htm.

Handbook for Developing Watershed Plans to Restore and Protect Our Waters

EPA's Office of Water published this guide to watershed management to help organizations develop and implement watershed plans. Its target audiences are communities; watershed groups; and local, state, tribal, and federal environmental

agencies. The guidebook takes the reader through each step of the watershed planning process: watershed monitoring and assessment, community outreach, selection and application of available models, best management practices, effectiveness data bases, implementation, feedback, and plan adjustment. It is intended to supplement existing watershed planning

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Geologic, hydrologic, and chemical data from the C Aquifer near Leupp, Arizona, by J.P. Hoffmann, D.J. Bills, J.V. Phillips, and K.J. Halford.
<http://pubs.usgs.gov/sir/2005/5280/>

Numerical ground-water change model of the C aquifer and effects of ground-water withdrawals on stream depletion in selected reaches of Clear Creek, Chevelon Creek, and the Little Colorado River, northeastern Arizona, by S.A. Leake, J.P. Hoffmann, and J.E. Dickinson.
<http://pubs.usgs.gov/sir/2005/5277/>

Streamflow and water-quality trends of the Rio Chama and Rio Grande, northern and central New Mexico, water years 1985 to 2002, by J.B. Langman and E.O. Nolan.
<http://pubs.usgs.gov/sir/2005/5118/>

Historical perspective of statewide streamflows during the 2002 and 1977 droughts in Colorado, by Gerhard Kuhn.
<http://pubs.usgs.gov/sir/2005/5174/>

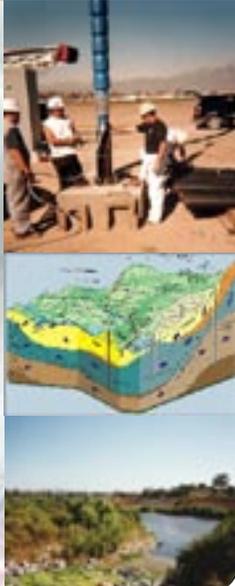
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guides that have been developed by agencies, universities, and other nonprofit organizations by providing more specific information about quantifying existing pollutant loads, developing estimates of the load reductions required to meet water-quality standards, developing effective management measures, and tracking progress once the plan is implemented.

The 414-page document, EPA 841-B-05-005, is available at www.epa.gov/owow/nps/watershed_handbook/.

Perchlorate: Overview of Issues, Status, and Remedial Options

Published by the Interstate Technology and Regulatory Council, this document provides basic information regarding perchlorate and perchlorate contamination. Commercially available remediation technologies fall into two broad categories: ion exchange and biological processes. Most of these technologies have been applied to groundwater remediation; however, biological processes are also being applied to soil remediation. This document provides an overview of the commercially available technologies and emerging technologies.

The 152-page report, PERC-1, is available at www.itrcweb.org/Documents/PERC-1.pdf.

Collecting and Interpreting Soil Gas Samples from the Vadose Zone

This publication of the American Petroleum Institute discusses soil gas transport with emphasis on petroleum hydrocarbon vapors, and the expected soil gas profiles based on empirical analysis of existing data; the conceptual vapor-migration model; sampling locations, depths, and sampling frequency; monitoring installations and sample collection procedures; methods of soil gas analysis; and interpretation of soil gas data. Appendices include a site information checklist, worksheets for planning sampling locations, supporting information on analytical methods, and tools for data evaluation.

The 106-page report, API 4741, is available at www.api.org/groundwater.