

# Chapters At A Glance

<b>CHAPTER 1</b> <b>BRIEF OVERVIEW OF CALIFORNIA'S</b> <b>WATER SUPPLY</b>	<b>1</b>
<b>CHAPTER 2</b> <b>A CAPSULE VIEW OF</b> <b>WATER RIGHTS LAW</b>	<b>35</b>
<b>CHAPTER 3</b> <b>SURFACE WATER RIGHTS</b>	<b>39</b>
<b>CHAPTER 4</b> <b>GROUNDWATER RIGHTS</b>	<b>75</b>
<b>CHAPTER 5</b> <b>THE DOCTRINES OF REASONABLE USE</b> <b>AND PUBLIC TRUST</b>	<b>105</b>
<b>CHAPTER 6</b> <b>EQUITABLE APPORTIONMENT</b> <b>AND THE DOCTRINE OF</b> <b>PHYSICAL SOLUTION</b>	<b>143</b>
<b>CHAPTER 7</b> <b>STATE WATER RESOURCES CONTROL BOARD—</b> <b>ITS ROLE IN WATER RIGHTS AND</b> <b>WATER QUALITY REGULATION</b>	<b>161</b>
<b>CHAPTER 8</b> <b>INTERACTION OF FEDERAL LAW AND</b> <b>STATE WATER LAW</b>	<b>191</b>
<b>CHAPTER 9</b> <b>URBAN WATER SUPPLIERS—</b> <b>REGULATION AND PLANNING</b>	<b>219</b>
<b>CHAPTER 10</b> <b>LAW OF THE COLORADO RIVER</b>	<b>235</b>
<b>CHAPTER 11</b> <b>REFLECTIONS</b>	<b>263</b>

# Contents

Preface	ix
Acknowledgments	xvi
Foreword	xvii
About the Authors	xx

## CHAPTER 1

### BRIEF OVERVIEW OF CALIFORNIA'S WATER SUPPLY 1

Introduction	2
California's Water Supply	2
Surface Water	2
Groundwater	5
Climate Change	5
California's Water Use	7
Agricultural Use	7
Urban Use	7
Environmental Use	8
California Water Projects	8
Central Valley Project	8
State Water Project	13
Conveyance in the Delta	19
Water Districts	19
Water Supply by Region	20
San Francisco Bay Area	20
Los Angeles and Southern California Areas	28
Colorado Desert Area	33

## CHAPTER 2

### A CAPSULE VIEW OF WATER RIGHTS LAW 35

Introduction	36
Property-Based Rights	36
Water Rights Not Connected to Land Ownership	36
Reasonable Use Doctrine	37
Statutory Regulation	37
Allocating Water to Meet Future Water Supply Challenges	37

## CHAPTER 3

### SURFACE WATER RIGHTS 39

Introduction	40
Riparian Water Rights	40
Development of Riparian Rights in California	40
Nature and Extent of Riparian Rights	43
Acquiring and Losing Riparian Rights	45
Priority/Interrelationship with Other Rights	48
Appropriative Water Rights	49
Development of Appropriative Rights in California	50
Nature and Extent of Right	52
Transfer, Loss and Severance of Appropriative Rights	53
Priority/Interrelationship with Other Appropriators	55
Limitations on Appropriative Rights	55
Prescriptive Surface Water Rights	56
Introduction	56
Waters Subject to Prescription	56
Prescriptors	57
Extent of Right	57
Reasonable and Beneficial Use	57
Open and Notorious Use	57
Adverse and Hostile Use	58
Continuous and Uninterrupted Use	58
Under Claim of Right	58
Prescription Occurs by Operation of Law	59
Limitations on the Right	59
Surface Water Transfers	59
Transfer of Appropriative Surface Water Rights	60
Transfers of Riparian Rights	63
Transfers of Conserved and Surplus Water	63
State Water Project Transfers—The Monterey Agreement	65
Wheeling Transfers	65
Surface Water Rights Remedies	67
Introduction	67
Declaratory Relief	67
Injunction	67
Parties Entitled to Relief	68
Adjudication of Water Rights	68
Area of Origin Protections	69
County of Origin Act	70
Watershed Protection Act	70

Delta Protection Act	72
“Protected Areas” Statutes	73

## CHAPTER 4

### GROUNDWATER RIGHTS

<b>Introduction</b>	76
<b>What Is “Groundwater”?</b>	76
<b>Springs</b>	78
<b>Groundwater Rights</b>	78
Overlying Rights	78
Appropriative Rights to Groundwater	80
Municipal Rights to Groundwater	81
Prescriptive Rights	82
Evolution of Groundwater Rights Law in Adjudications	84
<b>Groundwater Storage</b>	87
Right to Use Storage Capacity Is Not Proportionate to Pumping Rights	88
<b>Groundwater Management</b>	88
The Sustainable Groundwater Management Act (SGMA)	88
Groundwater Management Plans	96
Local Regulation of Groundwater	96
<b>Groundwater Transfers</b>	98
Transfers of Overlying Rights	98
Conjunctive Use of Surface and Groundwater	98
Wheeling Transfers	101
<b>Groundwater Rights Remedies</b>	101
Civil Action	101
Reference Procedure	102
Stipulated Decrees	102
<b>Groundwater Pollution</b>	102

## CHAPTER 5

### THE DOCTRINES OF REASONABLE USE AND PUBLIC TRUST

<b>Introduction</b>	106
<b>Reallocating Water</b>	106
<b>Law of Reasonable Use</b>	106
Origin of the Reasonable Use Doctrine	107
1928 Constitutional Amendment	108
The Erosion of Absolute Priority	108
The Further Development of Article X, Section 2	112
Reasonable Water Use in the Imperial Irrigation District	116
<b>Public Trust Doctrine</b>	120
Public Trust Doctrine in the United States	121
Public Trust Doctrine in California	123
<i>National Audubon Society v. Superior Court</i>	127

<i>After Audubon</i>	130
Consumptive and Instream Uses in the Litigation Context: A Case Study of <i>Environmental Defense Fund v. East Bay Municipal Utility District</i>	132
<b>Fish and Game Code Sections 5937 and 5946</b>	136
Mono Lake	136
Recent Litigation Involving Fish and Game Code Section 5937	138
Section 5937 as an Expression of the Public Trust Doctrine	140
<b>Implication Under the Fifth Amendment of the United States Constitution</b>	140

## CHAPTER 6

### EQUITABLE APPORTIONMENT AND THE DOCTRINE OF PHYSICAL SOLUTION

<b>Introduction</b>	144
<b>Equitable Apportionment</b>	144
<b>Physical Solution Doctrine</b>	145
Substantial “Enjoyment” of Prior Rights	146
Duty to Consider Physical Solution	146
Physical Solutions Do Not Require Consent of Parties or Overdraft	146
<b>California Physical Solution Cases</b>	147
<i>Peabody v. City of Vallejo</i>	147
<i>Tulare Irrigation District v. Lindsay-Strathmore Irrigation District</i>	148
<i>City of Lodi v. East Bay Municipal Utility District</i>	148
<i>Hillside Water Company v. City of Los Angeles</i>	150
<i>Rancho Santa Margarita v. Vail</i>	151
<i>Meridian, Ltd. v. City and County of San Francisco</i>	152
<i>Allen v. California Water and Telephone Company</i>	152
<i>City of Barstow v. Mojave Water Agency</i>	153
<i>California American Water v. City of Seaside</i>	154
<i>City of Santa Maria v. Adam</i>	155
<b>Trial Court Physical Solutions</b>	157
<i>Orange County Water District v. City of Chino</i>	157
<i>Chino Basin Municipal Water District v. City of Chino</i>	159
<i>Western Municipal Water District of Riverside County v. East San Bernardino County Water District</i>	160

## CHAPTER 7

### STATE WATER RESOURCES CONTROL BOARD—ITS ROLE IN WATER RIGHTS AND WATER QUALITY REGULATION

<b>Introduction</b>	162
<b>Authority Over Water Rights</b>	163

Appropriation of Surface Water	163
Evolution of the State Board's Authority	165
<b>Authority over Water Quality</b>	169
State and Federal Water Quality Legislation	169
Reach of State and Federal Legislation	170
Water Quality Planning	170
Regulation of Waste Discharge	174
Non-Point Sources	176
Enforcement	177
Review of Regional Board Action	178
State Board Authority Over Groundwater	178
<b>Bay-Delta Hearing Process</b>	178
D-1275	180
D-1379	180
D-1485	180
<i>Racanelli</i> Decision	181
Confirmation of State Board's Authority	182
Water Right Priorities Modified	182
Seemingly Never-Ending Bay-Delta Hearings, Between 1987 and 2000	183
Appeal of D-1641 and the Robie Decision	187
Involvement of Other State and Federal Agencies	189
Ongoing Bay-Delta Efforts	189

**CHAPTER 8**

<b>INTERACTION OF FEDERAL LAW AND STATE WATER LAW</b>	191
<b>Introduction</b>	192
<b>Mining Act of 1866</b>	192
<b>Desert Land Act of 1877</b>	194
<b>Reclamation Act of 1902</b>	194
<b>Reversal Toward Federal Control</b>	196
The 160-Acre Limitation	196
Area of Origin Protection	196
State Prior Appropriation Principles	197
<i>California v. United States</i>	197
State Law Prevails Unless Inconsistent with Clear Congressional Directives	198
<b>Section 8 in the 1980s</b>	199
Acquisition of Water Rights by Federal Agencies	199
<i>Racanelli</i> Decision	199
<b>Federal Energy Regulatory Commission and States' Rights</b>	200
<i>First Iowa</i> —Federal Preemption	201
Rock Creek Challenge for State Minimum Flow Control	201

<b>Federal Reserved Rights</b>	202
<i>Winters</i> Doctrine	202
<i>Winters</i> Extended to Non-Indian Federal Reservations	203
Adjudication of American Indian Water Rights	203
Pupfish Case	203
Reserved Rights Curtailed	204
Reserved Rights for Non-Consumptive Use	204
Federal Riparian Water Rights	205
Do <i>Winters</i> Rights Extend to Groundwater?	206
<b>Endangered Species Act</b>	206
Bay-Delta	207
Cooperation with State and Local Authorities	208
<b>Water Quality Regulation</b>	208
State Regulation of Water Quality After the Clean Water Act	208
State Authority Over Water Quantity and the Wallop Amendment	211
Federal Regulation of Water Projects	216

**CHAPTER 9**

<b>URBAN WATER SUPPLIERS—REGULATION AND PLANNING</b>	219
<b>Introduction</b>	220
<b>Legal Authority for Local Regulation of Water Use</b>	220
Water Conservation Programs	220
Conservation Through Water Pricing	220
Water Shortage Emergencies	222
No-Growth Policies	224
Application of CEQA	226
Claim of Inverse Condemnation	226
Water Meter Requirements	227
Exacting Water Rights as a Condition of Service	228
Recycled Water	228
<b>Planning for Future Water Needs</b>	229
Urban Water Management Planning Act	229
Duty to Augment Supply	230
Water Supply for New Developments	231
Water Supply Assessments and Verifications	231
<i>Vineyard</i> Decision	233

**CHAPTER 10**

<b>LAW OF THE COLORADO RIVER</b>	235
<b>Introduction</b>	236
<b>Upper and Lower Basins</b>	236

<b>Colorado River Compact</b>	238
Fear of Equitable Apportionment	238
Terms of the Compact	239
Basic Allocations	240
Tributary Flows	240
Present Perfected Rights	241
Ratification of the Colorado River Compact	241
<b>Federal Legislation Leading to the Boulder Canyon Project Act</b>	241
<b>Boulder Canyon Project Act</b>	242
<b>California Limitation Act</b>	243
<b>Seven Party Agreement</b>	243
<b>Continued Disputes with Arizona</b>	245
Neither the Law of Prior Appropriation Nor Equitable Apportionment Controlled	247
Tributary Waters Excluded	247
Congressional Apportionment Scheme	248
Secretary of the Interior's Power to Contract	248
American Indian Water Rights and Present Perfected Rights	250
<b>Mexico's Water Rights</b>	251
<b>Water Rights of the Imperial Irrigation District</b>	252
<b>The Colorado River Today</b>	253
The Central Arizona Project	253
California's 4.4 Plan	253
Quantification Settlement Agreement Package	254
<b>Over-Allocation of the Colorado River</b>	258
Prolonged Drought, Operational Guidelines, and the Bureau's Water Supply and Demand Study	258
Pilot Programs for Conservation	260
<b>Endangered Species</b>	260
<b>Salinity</b>	261
<b>CHAPTER 11</b>	
<b>REFLECTIONS</b>	263
<b>Introduction</b>	264
<b>Author's Reflections</b>	264
Can the State Continue to Meet Water Demands?	264
The Need for Leadership	264
The Need to Look Ahead	265
The Need to Consider In-Stream Values;	
The Need to Build	265
How Well Are We Now Doing?	266
Endangered Species Act	266
No Growth	267

<b>APPENDICES</b>	269
<b>Appendix A: Total Amounts of Annual Table A Water and Water Conveyed, by Type, 1962–2015</b>	270
<b>Appendix B: CASGEM Groundwater Basin Prioritization</b>	272
<b>TABLE OF AUTHORITIES</b>	287
<b>INDEX</b>	297
<b>ACRONYMS</b>	314
<b>LIST OF FIGURES</b>	
<b>Figure 1-1. Major Water Infrastructure in California</b>	3
<b>Figure 1-2. Annual California Runoff in inches</b>	4
<b>Figure 1-3. Rain as a Percentage of Total Precipitation in California</b>	6
<b>Figure 1-4. Wild and Scenic Rivers in California</b>	9
<b>Figure 1-5. Major State Water Project and Central Valley Project Facilities</b>	14
<b>Figure 1-6. State Water Project and Central Valley Project Facilities in the Delta</b>	15
<b>Figure 1-7. San Francisco's Hetch Hetchy Water Supply System</b>	22
<b>Figure 1-8. EBMUD's Mokelumne River Aqueduct System</b>	24
<b>Figure 1-9. SCVWD's Water Supply System</b>	26
<b>Figure 1-10. Santa Clara County's History of Groundwater Use</b>	27
<b>Figure 1-11. Main Sources of Los Angeles' Water Supply</b>	29
<b>Figure 1-12. MWD's Water Supply System</b>	31
<b>Figure 1-13. Imperial Irrigation District's Water Supply System</b>	34
<b>Figure 4-1. SGMA Timeline</b>	94
<b>Figure 7-1. Delta Waterways</b>	179
<b>Figure 10-1. Upper and Lower Colorado River Basins</b>	237
<b>LIST OF TABLES</b>	
<b>Table 1-1. State Water Contracting Agencies and Their Maximum Allocations (in acre-feet)</b>	17
<b>Table 3-1. Main Types of Statutory Surface Water Transfers</b>	62
<b>Table 4-1. Basins Exempt from SGMA (Water Code § 10720.8)</b>	92
<b>Table 10-1. Seven Party Agreement Priorities</b>	246

# Preface

## THIRD EDITION, 2019

My first encounter with water law was in a law school class. I found it fascinating in part because everything was shades of gray. There was no simple or final right answer as to how water should be allocated because people need water, farms need water, industries need water and the environment needs water. How that water is allocated is a matter of societal needs and priorities which, like the resource itself, are always changing.

After law school, I was very fortunate to join the law firm of Best Best & Krieger (BBK), which had been involved in water law for more than a half-century before I arrived. However, as a junior associate, every time I was sent to research a water law issue, I felt like I was reinventing the wheel. Nothing had been written on California water in over 20 years, and what had been written before that was pretty user-unfriendly. During those two decades, there had been a number of major judicial water decisions, as well as the passage of the Clean Water Act and the Endangered Species Act. Since I was researching and writing about many different water issues, I wanted to compile what I was finding in one place. So, I decided it made sense to do a new book on California water and managed to convince a skeptical Art Littleworth to work on it with me. With so much information available online today, it is gratifying that nearly 25 years after the first edition was published, the first two editions are sold out and there is interest in a third edition.

The inherent hazard in writing the preface to a water book is that, if someone bothers to read it years from now, it will, inevitably, be hopelessly dated. That is because water law and policy is constantly evolving in ways that few can anticipate. Despite this knowledge, I will go ahead and offer a few thoughts on where things stand in the water world in 2019.

The wonderful thing about working in water, whether it be in California, the east coast, the Middle East, Africa or Asia, is that one is working at the most basic human level. It doesn't matter what nationality, race or religion a person is, everyone needs water to survive, and the issues and problems that accompany meeting this fundamental human need are remarkably consistent the

world over. I have been fortunate to work in all of those regions, and what I am saying in a nice way is that it is not just California water law and policy that seems complex and at times dysfunctional; that is the case almost everywhere.

For the California water professionals reading this, I believe that California is the best place to practice water law or work in water. First, that is because we absolutely have the engineering, policy and legal capacity to solve California's water law and policy challenges. That is simply not true in many places around the world. Second, and this is purely from a lawyer's perspective, California's water law is extremely complex—the California Supreme Court has called it the most complex subject it deals with except for tax—and it provides a never-ending challenge. Third, almost any water issue that comes up anywhere outside California, or some variation of it, has already been addressed in some fashion in California. Sometimes that just means saying “don't do what we did in California,” but, more often than not, it means those of us who work in water in California can offer some useful information or guidance.

The reason that California has already faced so many water law and policy issues is that there are few, if any, places in the world with a Mediterranean climate that have the population and agricultural and industrial water demands that California has had. California's population has grown more than 10 fold in the past 100 years, and it has doubled in just the past half-century. Moreover, more than half of the nearly 40 million people living in California live in the drier southern part of the state, and that poses a substantial water challenge.

California water law and policy has gone through a lengthy evolution over what can roughly be described as four eras. In the first era, which lasted from 1850-1928, the Gold Rush and a great increase in irrigated agriculture prompted heavy water demand, both for those uses and the increasing population. During this time, surface supplies became fully used, and the basic rules of surface water rights were established. Later in this period, technology made it possible to pump groundwater, and groundwater rights were developed. Establishing rules was crucial as this really was the Wild West, and there was a good deal of truth in the phrase “better upstream with a shovel than downstream with a water right.” John North, who shared a desk with BBK founding partner

Raymond Best when Mr. Best established his law practice, once defended a client in front of the Supreme Court who had killed his neighbor over a surface water rights dispute.

The second era was characterized by the development of major water projects (Los Angeles' first water project was completed in 1913 so these eras are only rough approximations). Water projects were needed because local surface and groundwater supplies were being fully used and yet demand continued to grow. From the early 1930s until the early 1970s, the Colorado River Aqueduct, Central Valley Project and State Water Project were built. It was a time when water supplies seemed limitless, and technology, it seemed, would allow water to be brought from almost anywhere to meet California's water needs. BBK partner James Krieger was a major participant in developing the State Water Project and helped form several of its member agencies. The end of this era of construction and development as the primary way to meet California's water supply needs, in the early 1970s, coincided almost precisely with Krieger's untimely death in an airplane accident in 1975.

The third era involved recognizing the importance of environmental values and integrating those into water law and policy. This began in earnest with the Clean Water Act and Endangered Species Act in the early 1970s and continued through the California Supreme Court's public trust decision in the National Audubon case in 1983, certainly one of the most important California water law decisions.

The fourth era, which we are still in, has encompassed the challenge of allocating water between environmental and consumptive uses, the recognition that California's water demand is closely matched with its supply, and the reality that climate change will have a huge impact on California's water that has yet to be addressed. This may well turn out to be the most difficult era yet unless technological innovation can significantly increase the efficiency of existing uses.

So in summary, the evolution of California water could be described as: 1) Use the cheapest water first (surface and then groundwater); 2) Go get more water because we can bring it from anywhere; 3) Wow, the environment is really important—we should do something to take care of it; and 4) Uh oh, the supplies are stretched pretty thin and may be getting a lot thinner. Of course,



this is a tongue-in-cheek version, but, when dealing with California water, you have to have a sense of humor.

Meeting the challenges of this era will require creativity. We can't simply build our way out of it, but neither can we just conserve our way out of it. Instead, the solution is to develop a new synthesis of both supply and law that will allow California to meet its present and future water demands.

It is important to address the demand side and do everything possible to stretch existing supplies further. This includes using new irrigation technologies (and figuring out creative ways to help agriculture cope with the cost of implementing them) and less irrigation in outdoor urban areas. Conservation does need to be a way of life in California but, as will be discussed below, using less water cannot cause our water suppliers to be unable to meet their capital, operational and maintenance-related expenses.

On the supply side, particularly because of the changing climate, we have to do everything we can to diversify our water supply portfolio. This includes more recycled water and more storm water capture. However, at least in the short-term, new sources and conservation cannot replace the water currently moved great distances to the Bay Area and Southern California. While, as I noted above, we can't build our way out of the challenges we face, the transition to more local sources will take decades, and this means that water has to be moved through the Bay-Delta in the most efficient and environmentally-sensitive manner reasonably possible. That means construction of a Delta conveyance facility.

Increasing fluctuations in water supply due to climate change also mean that storage is extremely critical. Underground storage and off-stream storage are preferable for both economic and environmental reasons and hopefully can provide the storage we need.

A fundamental issue with limiting demand and diversifying supply is economics. Most water suppliers rely on sales to fund their operations and maintenance, meaning that conservation actually decreases their revenue. This is a major problem and must be addressed if efficient use is to be consistently maximized and if projects to use recycled water and capture storm water are to be completed.

Over the next two decades, groundwater use in California will change significantly. The implementation of the Sustainable Groundwater Management Act means that the time-honored practice of overdrafting basins and “pumping until a judge tells you not to” will be replaced with limiting pumping to the sustainable yield of the basin. While SGMA may produce a number of groundwater adjudications, one way or another there will be sustainable groundwater management throughout California by the 2040s.

I am optimistic that California will meet these challenges. We won’t get to where we need to be as quickly or as easily as we would like, but that is the nature of water. Water is often compared to gold or referred to as the “new oil,” but unlike gold or oil, we can’t live without it. Quick and easy solutions to water allocation issues can’t possibly consider all potential uses and reach the proper balance between them. Rather, meaningful progress and equitable solutions take time. However, I believe we will meet our challenges in large part because of the reasonable use doctrine that governs all California water law. The reasonable use doctrine has allowed California to gradually adapt its water uses to changing demands and societal priorities. It will continue to allow California to use its incredible technological, intellectual and financial resources to meet its water demands.

Whether you work in water or simply enjoy watching the water world, I hope you find the information in this book useful as California continues on its water journey.

—Eric L. Garner

## **SECOND EDITION, 2007**

The first edition of *California Water* was published more than ten years ago. At that time, I had some doubts about whether a book of this kind would be well received. I knew there was a real need for a practical book that dealt not only with basic water law, but also more generally with water issues, water development, and the relationship of water to the environment. Multi-volume treatises were then available as they are now, but there was nothing that was easily readable for the interested person. The visible need was not only for the lawyer, but for the engineer, the planner, the elected official, or the community leader who was interested in water, for those who were looking for a concise, yet still comprehensive, story of California water. Nonetheless, a book of this kind is hardly bedtime

reading, and I was pleasantly surprised when the first printing sold out. And, later, even more heartened when people began to ask about when we were going to put out another edition.

More than a decade later is a good time for the new book. The historic Bay-Delta Accord of 1994 has now achieved legal recognition in State Board Decision 1641 which was essentially affirmed in Justice Robie's landmark opinion. However, the promise of implementation through the consensus approach of CALFED appears to be fading. The critical issues on the Colorado River, occasioned by disappearing surpluses and California's use of more than its basic 4.4 million acre-foot entitlement, occupied almost a decade of sometimes bitter politics, negotiations, and litigation. But a settlement of those issues is now in place among the major California water users, the Bureau of Reclamation, and other Colorado basin states. Water transfers, conservation, recycling, and conjunctive use of groundwater have begun to emerge as major sources of supply. The ESA and CEQA have come to overshadow traditional water rights in the allocation of the state's water resources. Global warming is much in the news, but the impact on our water supplies is still uncertain. A recent 2007 report by the Public Policy Institute of California asserts that our decades-old policy of trying to maintain the entire Delta as a fresh water source is no longer viable, suggesting a return to more natural saline conditions, and resurrecting the peripheral canal. In 2000, the Supreme Court issued its most important decision on groundwater law<sup>\*</sup> since the 1975 opinion in *Los Angeles v. San Fernando*. The historic settlement in the Friant case restored flows in a reach of the San Joaquin River. And the legislature and the Supreme Court have now begun to tie the approval of future urban development to more secure water supplies. So while much of the history of California's water development and the basic principles of water law that were included in the original edition of *California Water* are still present in this book, much material has been added to recount more than ten years of significant change.

As noted in our first edition, we come to water issues from the perspective of a law firm that primarily represents public agencies which bear the heavy responsibility of providing reliable water supplies to a growing population and some of the most productive agriculture in the world.

<sup>\*</sup> *City of Barstow v. Mojave Water Agency* (2000) 23 Cal. 4th 1224.

Still, we have tried to keep the book impartial, and to fairly represent the increasing importance of the environmental uses of water. The in-stream use of water and the consumptive uses of water frequently clash, and we have devoted significant portions of the book to this issue. At one point, it appeared that conflict might be on the wane as the Environmental Water Account and CALFED paid huge amounts of money into ecosystem restoration. However, recent dramatic declines of pelagic fisheries in the Delta, and diminishing support for the CALFED consensus approach, have led to renewed attacks on SWP and CVP Delta exports. Conflict, without a solution, is the condition as this book goes to press.

On a personal note, I continue to believe that state efforts to create more storage are sadly lagging. The capture and storage of high flows, not needed for environmental uses, are vital to long-term reliable water supplies. Additional surface storage facilities become even more important as climate changes may substitute increased rainfall and fast runoff for the natural storage of water now achieved from mountain snow packs. Moreover, the increased use of groundwater basins to store water still requires the temporary use of surface storage facilities. Getting water underground is a slow process. High flows first have to be held somewhere before they can be percolated into groundwater basins. And storage facilities take years, if not decades, to get finally built. Storage facilities constructed now can help to head off the potentially disastrous impacts of a long drought, but storage facilities that are only studied and talked about now, though perhaps to be built later, cannot provide quick relief from drought. Previous generations planned for growth and to protect the state against drought. That surplus capacity has now been essentially used up. Without the same kind of foresight, drought will simply pit cities, farmers, and the environment against each other for the use of the scarce resource. We should have learned from the electrical crisis how devastating a shortage in a basic utility service can be. Yet a shortage of electricity is far easier to remedy than a shortage of water. Electricity can be manufactured and purchased from outside the state. Water has only one advantage over electricity. It can be stored. This advantage should not be squandered.

—Arthur L. Littleworth