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The Market and the Community: Lessons from California's Drought Water Bank

Brian E. Gray*

Introduction

Beginning in the early 1980s, the California Legislature enacted a series of laws that were designed to facilitate and to promote the voluntary transfer of water. In creating a "limited free market" for water, the Legislature recognized that it would be necessary to consider alternatives to new engineering projects to supply the state's burgeoning demand for water. Foremost among these alternatives was the strategy of encouraging existing water users to conserve water and to make the fruits of the conservation available for some other use. Water transfers were a central feature of this strategy, because the market both would offer price incentives for voluntary conservation and would present existing users with the opportunity costs of continuing their current, perhaps less than efficient, water use practices.¹

Snowpack and precipitation were abundant during the early 1980s in all areas from which California obtains its surface water. Consequently, few users transferred water pursuant to the new transfer laws. As the 1980s progressed, however, California fell into one of the most severe droughts in

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This article was originally written as part of a multidisciplinary study of the Water Bank. The fruits of this study will appear as "Sharing Scarcity: Gainers and Losers in California Water Marketing" (Henry J. Vaux, Jr., Harold O. Carter, and Ann Foley Scheuring, editors), which will be published by the Agricultural Issues Center and the Water Resources Center of the University of California. A slightly different version of the article appears as chapters two and six of this book. I thank Ann Scheuring, who edited the final versions on these chapters.

1. For a more detailed explanation of the purposes of California's water transfer laws, see Brian E. Gray, *The Modern Era in California Water Law*, 45, HASTINGS L.J. 249, 273-78 (1994).

the state's recorded history, and several large transfers of conserved and surplus water took place.² By the end of the decade, the cumulative effects of the drought included acute supply shortages throughout the state and a panoply of environmental problems.³ In response, Governor Pete Wilson declared a state-wide water supply emergency in February 1991 and ordered the Department of Water Resources to create an Emergency Drought Water Bank. The Water Bank, which operated for two years, represents the first significant test of California's modern water transfer laws.

This article analyzes the legal issues associated with the transfer of water from users in Yolo and Solano Counties to the 1991 Water Bank.⁴ The analysis is based in large part on the interviews with a number of the participants in, and representatives of groups affected by these transfers. From these interviews, six important questions have emerged:

- (1) Were the existing water transfer laws, which authorize the transfer of surplus water and water made available as a result of conservation, adequate to facilitate the transfer of water to the Water Bank?
- (2) Why did the State Water Resources Control Board have so little jurisdiction over the transfers to the Water Bank, and did the Board's limited role conform to the requirements of California law?
- (3) Did the Department of Water Resources' acquisition of the benefits of water held pursuant to riparian rights unlawfully circumvent the place-of-use limitations of the riparian system?
- (4) Should the transfers of the "base supplies" held by the Central Valley Project "water rights settlement" contractors have been subject to the transfer jurisdiction of the State Water Resources Control Board?

2. For a description of these transfers, see Brian E. Gray, *Water Transfers in California: 1981-1989*, in 2 Lawrence J. MacDonnell, ed., *The Water Transfer Process as a Management Option for Meeting Changing Demand*, Ch.2 (U. Colo. 1990).

3. See *infra* Part I.A.

4. This article focuses on Water Bank operations during 1991 for two reasons. First, this article was written as part of a larger multidisciplinary study of the Water Bank that began in 1992 and which relied heavily on data from the 1991 water year. By the time the study was completed, final data from the 1992 Water Bank were not available. See *supra* note*. Second, a principal topic of the article is the effects of water transfers on third-party interests in the areas from which water was conserved and transferred to the Water Bank. The 1991 Water Bank included water made available from land fallowing, while the 1992 Water Bank did not. Consequently, the 1991 transfers provided more useful data for analyzing the relationship between water transfers and local economic, hydrologic, and environmental interests affected by the transfers. The article does compare the 1991 and 1992 operations where appropriate, particularly in Part III which evaluates changes in law and policy that have resulted from the state's experience in administering the 1991 Water Bank. For more information on the 1992 Water Bank, see CALIFORNIA DEPARTMENT OF WATER RESOURCES, *THE 1992 DROUGHT WATER BANK* (1993).

- (5) Did the transfers of surface water made available by the transferor's decision to use groundwater as a replacement source of supply comply with the surface water transfer laws and the California Water Code's protections of counties in which groundwater originates?
- (6) Did the transfer process established by the Department of Water Resources (a) protect the interests of the local areas from which water was exported and (b) provide an adequate forum for consideration of potential environmental effects of the transfers?

These questions overlap one another in many significant respects. For example, the limited role played by the State Water Resources Control Board (hereinafter "the Board") was largely the result of the Department of Water Resources' (hereinafter "DWR") legal characterization of the surface water that was transferred to the Water Bank. And, one consequence of the Board's restricted jurisdiction was the elimination of existing legal protections for third-party interests and for counties in which groundwater originates. Thus, the analysis of these questions will dovetail, and the answers to any one question inevitably will shape the answers to the others.

Along with the legal analysis, I will discuss whether the actions taken by the participating agencies, though lawful (or at least legally justifiable), represent salutary public policy. For example, the characterization of certain transfers in a way that removed them from the regulatory jurisdiction of the Board undoubtedly made it easier for the Department of Water Resources to acquire water for distribution to areas of the state that were suffering from severe shortages. But is it proper for agencies with paramount authority over California's water resources to circumvent the statutory protections established by the Legislature for the protection of groundwater reserves, fish and wildlife, instream flows, and the interests of areas-of-origin? Thus, in addition to evaluating the legality of actions that have long since transpired, I will suggest how California's water transfer laws should be changed to incorporate the positive lessons of the 1991 Water Bank and to redress the actions that were legally problematic or which inappropriately favored some of the competing interests over others.

I. A Brief Overview of the 1991 Water Bank

A. The Cumulative Effects of the Drought

The 1991 Water Bank was created in response to an impending water supply emergency in many areas of California caused by four consecutive years of drought. Following a period of relative abundance during the early 1980s, capped by an officially "wet" year in 1986, California began an

extended drought.⁵ Water years 1987 and 1988 were designated as "critical." Conditions improved slightly in 1989, which as a result of unusually high March precipitation in the Sierra Nevada ended up merely as a "dry" year. In water years 1990 and 1991, however, precipitation and runoff returned again to "critical" levels and the cumulative effects of the drought began to strain both the economy and the environment of the state.⁶

In February 1991, storage in California's 155 largest reservoirs had dropped to 54 percent of average, the lowest level since the 1976-1977 drought and the second lowest level since the state's major water supply facilities were constructed.⁷ Storage in the State Water Project [hereinafter "SWP"] was at an all-time low, standing at 884,000 acre-feet or only 18 percent of capacity.⁸ The Department of Water Resources estimated on February 1 that inflow to Oroville Reservoir for the 1991 water year would be only 1.54 million acre-feet, or 32 percent of historical average.⁹ Based on these data, the Department announced on February 4 that it would deliver only 10 percent of the water requested by State Water Project contractors for municipal and industrial supply and *no* project water to agricultural users.¹⁰

Central Valley Project (hereinafter "CVP") water users faced only slightly less dire prospects. CVP storage was 2 million acre-feet below February 1990 levels and stood at 3.8 million acre-feet or 51 percent of

5. Statewide precipitation during the 1986 water year (October 1, 1985, through September 30, 1986) was 128 percent of average and runoff exceeded the historical average by 40 percent. The Sacramento River Index (which estimates the unimpaired runoff in the Sacramento River system above the city of Red Bluff, the flow of water from the Feather River in Oroville Reservoir, the unimpaired flow of the Yuba River at the town of Smartville, and the flow of the American River into Folsom Reservoir) was 25.7 million acre-feet or 6.8 million acre-feet greater than its fifty year average to that date. In addition to these annual supplies, of October 1, 1986, reservoir storage stood at 199 percent of average. CALIFORNIA DEPARTMENT OF WATER RESOURCES, CALIFORNIA'S CONTINUING DROUGHT 1987-1991: A SUMMARY OF IMPACTS AND CONDITIONS AS OF DECEMBER 1, 1991, at 2, (1991) [hereinafter 1991 DWR REPORT].

6. *Id.*

7. CALIFORNIA DEPARTMENT OF WATER RESOURCES, THE 1991 DROUGHT WATER BANK 1 (1992) [hereinafter 1992 DWR REPORT].

8. STATE OF CALIFORNIA, REPORT OF THE GOVERNOR'S DROUGHT ACTION TEAM 8 (1991) [hereinafter DAT REPORT]. The Department of Water Resources also had access to 250,000 acre-feet of water in groundwater conservation storage. *Id.*

9. *Id.*

10. 1992 DWR REPORT, *supra* note 7, at 1. The only exception was for contractors in the Feather River service area, who have water rights settlement agreements with the state that recognize their pre-project water rights. DWR announced that these users would receive 50 percent of their normal contract supplies. *Id.*

historical average.¹¹ The Bureau of Reclamation estimated that the runoff into CVP reservoirs would be 1.3 million acre-feet less than in water year 1990.¹² In response to these forecasts, the Bureau announced in February 1991 that deliveries to urban and agricultural users would receive only 25 percent of normal contract supplies, and other CVP contractors that have special status because of their pre-project water rights—the Sacramento River Water Rights Settlement Contractors and the San Joaquin River Exchange Contractors—would receive 75 percent of their contract entitlements.¹³

Regional water supply agencies were similarly affected by the continuing drought. The Hetch Hetchy Project, which supplies water to San Francisco and thirty other cities and water agencies on the San Francisco Peninsula, had only 400,000 acre-feet of stored water on February 1, compared with normal storage of one million acre-feet. Snowpack in the Tuolumne River watershed above Hetch Hetchy Reservoir was virtually nonexistent and "[p]rospects for additional inflow [were] not promising."¹⁴ As a result of the projected supply deficiency, the San Francisco Water Department imposed mandatory water rationing, requiring its wholesale and retail customers to reduce consumption by 25 percent from 1986 levels.¹⁵ In Southern California, the Los Angeles Department of Water and Power projected that it would be allowed to take only 130,000 acre-feet from the Owens Valley and Mono Basin, approximately 25 percent of normal exports.¹⁶ To compensate for the supply deficiency, Los Angeles proposed to make full use (100,000 acre-feet) of its groundwater from the Metropolitan water District.¹⁷

11. DAT REPORT, *supra* note 8, at 9.

12. *Id.*

13. 1992 DWR REPORT, *supra* note 1, at 1. Interestingly, within the Friant Unit of the CVP, deliveries to Class I contractors were not reduced at all, although no water was available for Class II uses. 1991 DWR REPORT, *supra* note 5, at 19.

14. DAT REPORT, *supra* note 8, at 9.

15. *Id.*

16. *Id.* at 12.

17. *Id.* Although at that time Metropolitan Water District's [hereinafter "MWD"] projected supply from the SWP was only 10 percent of normal, *see supra* text accompanying note 10, at 4. The Secretary of the Interior had informed MWD that it would be receiving a nearly normal supply from the Boulder Canyon Project. The Seven-Party Agreement apportioning Colorado River Water among the California recipients provides that MWD's maximum annual entitlement at fourth and fifth priorities is 1,154,000 acre-feet. CALIFORNIA DEPARTMENT OF WATER RESOURCES, CALIFORNIA WATER: LOOKING TO THE FUTURE, BULLETIN 160-87, 28 (1987). Despite three years of drought in the Colorado River basin, accumulated storage in the system allowed the Secretary to promise deliveries of at least 4,886,000 acre-feet to all California users, including 1,024,000 acre-feet to MWD. DAT REPORT, *supra* note 8, at 12.

By 1991, most agricultural users with access to groundwater had increased their pumping to compensate for the shortages in surface water supplies.¹⁸ The number of new well drilled rose to an all-time high of 24,000 in 1990, and significant groundwater overdraft was reported throughout the eastern San Joaquin Valley and in the Tulare Basin.¹⁹ According to the Department of Water Resources, groundwater depletion in these areas from 1987 to 1991 exceeded 11 million acre-feet.²⁰ There were also reports of subsidence in both areas, and overdraft-induced groundwater pollution problems were found in Kings and Kern Counties.²¹ By February 1991, the state predicted that a significant number of wells would go dry by the end of the year along the North Coast, in the eastern Sierra Nevada, and in the Central Valley foothills.²²

Despite the increased use of groundwater, substantial shortages existed in most regions of the state. The agricultural areas expected to be most adversely affected were "the Central Coast, the west side of the Southern San Joaquin Valley, and western Yolo County."²³ Following the announcement of reductions in SWP and CVP deliveries, there were reports that more than one million acres of farmland would be without surface water.²⁴ The state predicted that "over 100,000 acres of trees and vines in the southern San Joaquin Valley . . . will be endangered . . . unless enough water is transferred to save them."²⁵

A number of municipal water supply agencies had adopted mandatory water rationing programs. These agencies included the Marin Municipal Water District, the San Francisco Water Department, the Santa Clara Valley Water District, the City of Santa Barbara, and the City of Los Angeles.²⁶ Most other major urban water agencies had either called for voluntary reductions in consumption or were considering mandatory rationing.²⁷ The Metropolitan Water District adopted a price incentive system that was designed to induce its member agencies to reduce demand by 31 percent on a system-wide basis.²⁸

18. 1992 DWR REPORT, *supra* note 7, at 16.

19. *Id.* at 18.

20. 1991 DWR REPORT, *supra* note 5, at 16.

21. *Id.*

22. DAT REPORT, *supra* note 8, at 17-19.

23. *Id.* at 15.

24. Carl Ingram & Marla La Ganga, U.S. *Water for State Farmers is Cut by 75 percent*, L.A. TIMES (quoting Jason Peltier, Manager, CVP Water Assn.), Feb 15, 1991. at 3. 36.

25. DAT REPORT, *supra* note 8, at 14.

26. *Id.* at 16.

27. *Id.*

28. *Id.* at 18.

Cities served by the SWP and the CVP were "concerned about severe water reductions."²⁹ These included towns in Shasta County, the San Juan Suburban Water District in Sacramento County, Yuba City, cities in southern Alameda and Santa Clara Counties served by the South Bay Aqueduct and San Felipe Project, and cities in Solano County, such as Benicia and Vallejo, which depend on water from the North Bay Aqueduct for virtually their entire water supply.³⁰ And, as of February 15, 1991, ten counties—Mendocino, Sonoma, Marin, Glenn, Colusa, Sutter, Yuba, Madera, Tulare, and Santa Barbara—had declared water shortage emergencies.³¹

The drought also had adverse consequences for fish, wildlife, riparian vegetation, aquatic habitat, wetlands, and a variety of other natural resources, as well. The state reported in February 1991 that "[s]ubstantial reductions in stream flow requirements below dams have been in effect for the last four years," and "[s]treams dependent on unregulated flow are at seriously low levels."³² As a result of the diminished riparian habitat, fish and wildlife throughout California were "undergoing severe stress."³³ A variety of fish species were particularly vulnerable. For example, the 1990 fall run of Chinook salmon returning to the Sacramento River numbered about 15,000, which was the lowest recorded population.³⁴ The 1991 Chinook salmon winter run—which is listed as a "threatened" species under the Endangered Species Act—was even worse. Only 191 adults returned to spawn, down from 441 in 1990 and approximately 20,000 in 1981.³⁵ Striped bass may have suffered the most dramatic declines.³⁶ The adult population of striped bass also reached an all-time low in 1991 of 515,000.³⁷

In addition, the drought had contributed to the loss of about one-third of the timber in the Sierra Nevada, and tree mortality statewide stood at 8 billion board feet, approximately two and one-half times the normal amount.³⁸ Fuel and fire conditions were at hazardous levels, and drought-weakened forests were highly susceptible to insect infestation.³⁹ The state

29. *Id.* at 15.

30. *Id.*

31. *Id.* at 20-21.

32. *Id.* at 16.

33. *Id.*

34. 1991 DWR REPORT, *supra* note 5, at 31.

35. *Id.* at 31,33.

36. *Id.* at 32.

37. *Id.*

38. DAT REPORT, *supra* note 8, at 33.

39. *Id.*

also reported that "[n]atural wetlands have dried up and managed wetlands will receive only very limited allocations for 1991."⁴⁰

B. Creation of the Water Bank

In response to these problems, Governor Wilson issued an executive order on February 1, 1991, which created a "Drought Action Team" comprised of the Secretary of the California Resources Agency and the directors of various other state and federal agencies.⁴¹ The Governor directed the group to coordinate the state's response to the drought and to recommend a course of action to mitigate its predicted effects on domestic water supply, agriculture, and the environment during the upcoming year. On February 15th, the Drought Action Team issued its first report, recommending among other action that the Department of Water Resources establish either a clearinghouse to facilitate the transfer of water between willing buyers and sellers or a "Water Bank" through which the Department itself would purchase water for resale to areas of California suffering from supply shortages.⁴²

The Governor chose the latter alternative and created the 1991 Drought Water Bank. According to the Drought Action Team, the Water Bank would, "in effect, create a pool of available water. This would then be made available for urban agencies with critical needs, for critical agriculture needs, fish and wildlife and for carryover storage for next year."⁴³ At the outset, it was recognized that "[g]iven the nature and extent of the drought, there are only a few areas that may have water to sell."⁴⁴ The Drought Action Team noted that sellers would have to be "fairly compensated for sharing available resources" and would require assurances that participation in the Water Bank would not jeopardize their water rights.⁴⁵ Two alternative means of acquiring water were proposed:

One would involve simply paying a farmer for his water which would result in fallowing of land this year. The other is to pay a farmer to switch from stream diversion to the use of groundwater. In either case, the water would be made available for immediate sale and use or held in Oroville, Clair Engle, or Shasta reservoir[s] for sale at a later date.⁴⁶

40. *Id.* at 16.

41. Governor of California, Exec. Order No. W-3-91 (1991); *see* DAT REPORT, *supra* note 8, at iv.

42. DAT REPORT, *supra* note 8, at 28.

43. *Id.*

44. *Id.*

45. *Id.* at 28-29.

46. *Id.* at 28.

The Drought Action Team emphasized that time was of the essence. "Potential sellers are largely Central Valley farmers who are now making crop decisions; potential buyers are cities and farmers who need to make immediate decisions to cope with severely limited water supplies."⁴⁷ Accordingly, the State Water Resources Control Board promised to expedite consideration of all petitions to engage in a temporary transfer of water to the Bank.⁴⁸

C. Operations of the 1991 Water Bank

Immediately following the Drought Action Team's report, the Department of Water Resources created a "Water Purchase Committee" comprised of representatives of potential buyers and sellers. The Committee's tasks were to negotiate the terms of a model contract for water bank transfers, to establish a uniform price for the water acquired by the Bank, and to estimate the amount of water that would be offered for sale and demanded by potential purchasers at that price.⁴⁹

Establishment of a "fair and workable price" was one of the most difficult and time-consuming issues faced by the Water Purchase Committee.⁵⁰ Although the Department of Water Resources has stated that "the value to the potential user had to be considered" in establishing the purchase price for water transferred to the Bank,⁵¹ the opportunity cost to potential sellers of not transferring water was the dominant factor in the Water Purchase Committee's pricing calculus. The committee began with the assumption that most of the water transferred to the water bank would come from the fallowing of rice, corn, and wheat in the lower Sacramento Valley and the Delta. "The intent was to offer a price that would yield a net income to the farmer similar to what the farmer would have earned from farming plus an additional amount to encourage the farmer to enter into a contract with a new and untried water bank."⁵² At the same time, both DWR and the Governor expressed a strong desire to prevent sellers from earning excessive profits by charging higher prices based on individual buyers' willingness to pay.⁵³ Thus, "[a]fter taking a detailed look at farm budgets, talking to potential sellers and buyers, and getting advice from agricultural economists

47. *Id.* at 29.

48. *Id.*

49. 1992 DWR REPORT, *supra* note 7, at 1.

50. *Id.* at 5.

51. *Id.*

52. *Id.*

53. See Eric Brazil, *State "Water Bank" Tap Looks Dry*, S.F. EXAMINER, Feb. 28, 1991, at 7.

and others knowledgeable about crop and water use," DWR set the purchase price for water transferred to the Water Bank at \$125 per acre-foot.⁵⁴

The Water Bank entered into 351 contracts for the purchase of 821,045 acre-feet of water.⁵⁵ Participating sellers provided water from three different sources: (1) surface water conserved as a result of fallowing land that the seller otherwise would have irrigated; (2) surface water made available by the seller's decision to use groundwater in its place; and (3) surface water previously stored by the seller that was in excess of the seller's projected needs for the water year.⁵⁶

Three hundred twenty-eight of the contracts, accounting for 50 percent of the purchased water, were "fallowing contracts" by which the sellers were paid not to irrigate crops.⁵⁷ Fifty-nine percent of the 166,093 acres fallowed

54. 1992 DWR REPORT, *supra* note 7, at 5. The standard form transfer contracts also included a "price escalator clause," which was designed to induce potential sellers to participate in the water bank early in the process, rather than waiting for a higher price in the event that water conditions worsened and market factors drove up the contract price. RICHARD HOWITT, ET AL., A RETROSPECTIVE ON CALIFORNIA'S 1991 EMERGENCY DROUGHT WATER BANK 10 (1992) (hereinafter "HOWITT REPORT").

Under the clause, if the average price paid similarly-situated sellers in contracts executed by a specified future date exceeded by 10 percent the price specified in the contract, then the seller would receive the higher price. If the average price paid similarly-situated sellers was less than the contract price, the seller would still receive the (higher) price specified in the contract.

Id. at 10-11.

Initially, DWR was criticized for setting a price that many perceived to be substantially below the true market price for water. *See e.g.* David Newdorf, *The Scramble for Water*, S.F. RECORDER, Mar. 4, 1991, at 1. Representatives of the Sacramento Valley rice growers stated, for example, that the \$125 per acre-foot by the Water Bank was only about one-third of the price that they would be willing to accept to fallow their land. *See* Sabin Russell, *Protests on "Water Bank" Prices*, S.F. CHRONICLE, Mar. 9, 1991, at 1. Ultimately, few rice growers participated in the Water Bank. 1992 DWR REPORT, *supra* note 7, at 4. As events transpired, however, the price of water fell in the months after the creation of the Water Bank. Although the Bank paid \$125 per acre-foot to all participating sellers,

[l]ate in the year, the SWP negotiated contracts for the purchase of 10,000 acre-feet at \$50 per acre-foot and 10,000 at \$30 per acre-foot. The price reduction reflected the more favorable water supply and demand conditions. Among the factors contributing to the improved conditions were the ample March rains, a mild summer, and the remarkable success of the Water Bank and urban water conservation measures.

Id. at 5.

55. HOWITT REPORT, *supra* note 54, at 10.

56. *Id.* at 10-11.

57. *Id.* The term "fallowing contract" is a bit of a misnomer, because the contracts prohibited only the *irrigation* of land subject to the contract. Thus, consistently with the

were located along the lower Sacramento River and in the Delta.⁵⁸ Of this land, 40,206 acres were in Yolo County and 18,551 acres were in Solano County.⁵⁹ This represented 12 percent of the acreage irrigated during the preceding five years in Yolo County and approximately 10 percent of the estimated crop value. For Solano County, the fallowed land represented less than 10 percent of the irrigated acreage, but 18 percent of the estimated crop value.⁶⁰

DWR established a "crop fallowing payment schedule," which listed the estimated amount of applied water *consumed* by each of the fallowed crops.⁶¹ These estimates ranged from a high of 3.5 acre-feet per acre for rice, alfalfa, and pasture in the Sacramento Valley and Delta Upland, to a low of 1.0 acre-feet per acre for grain in the Sacramento Valley and Delta.⁶² Along with promising not to irrigate crops during the 1991 growing season, farmers who participated in the fallowing program also agreed to eliminate weeds and other vegetation that would consume significant quantities of water.⁶³ The contracts also provided that sellers who irrigated land that they had agreed to fallow, would be liable for liquidated damages of double the price paid for the fallowing.⁶⁴

Nineteen contracts, amounting to 33 percent of the water sold to the Bank, were for what DWR has characterized as "groundwater."⁶⁵ Under these contracts, the sellers "agreed to pump groundwater to irrigate crops and

contract, the seller could plant any crop that would not require irrigation. "Grain, pasture, and alfalfa were allowed if irrigation was withheld for the entire season. Land intended for corn, tomatoes, and other annual crops was left fallow. Asparagus was allowed if the crop was plowed under." 1992 DWR REPORT, *supra* note 7, at 7.

58. HOWITT REPORT, *supra* note 54, at 10.; 1992 DWR REPORT, *supra* note 7, at 4.

59. 1992 DWR REPORT, *supra* note 7, at 4.

60. HOWITT REPORT, *supra* note 54, at 18.

61. *Id.* at 11.

62. *Id.* The "estimate crop consumptive use" was equal to the crop's evapotranspiration under the assumption that rainfall during the 1991 growing season would be equal to that of the 1977 growing season. Because the actual rainfall for 1991 exceeded these projections, however,

DWR reduced its estimates of crop water need for certain crops such as wheat and grain. For example, before March 1, DWR estimated that grain would consume 2.0 af/acre of applied water. With the unusually heavy March rains, DWR reduced the estimates to 1.5 af/acre after March 1, and finally to 1.0 af/acre by March 13.

Id. at 12.

The fallowing contracts were based on the estimated consumptive use at the time each agreement was executed. *Id.* For a complete list of the estimated consumptive use for each crop involved in the 1991 Water bank, *see id.* at 13.

63. *Id.* at 11.

64. *Id.*

65. 1991 DWR REPORT, *supra* note 7, at 8.

allow [the] surface water they normally used to be transferred to the Water Bank."⁶⁶ The usual arrangement was for the seller to use its own wells to obtain the groundwater and for the seller's water district to "release an equal amount of its surface supply to the Bank."⁶⁷ In a few cases, accounting for less than 10,000 acre-feet, the seller directly transferred groundwater to the Water Bank.⁶⁸ DWR reviewed construction records for each of the participating seller's wells in order to ensure that the groundwater pumped in lieu of the transferred surface water was not taken from the river and therefore represented a "new" source of supply to the surface water system.⁶⁹

Nevertheless, "[c]oncerns were expressed that groundwater might be pumped for use outside the basin."⁷⁰ DWR responded to these concerns by including in the contracts for purchase of "groundwater" from Butte, Yolo, and Yuba Counties the requirement that the sellers establish groundwater monitoring programs to measure both the quantity of groundwater pumped and the effects of the increased withdrawals on the groundwater table.⁷¹ In addition, the Yolo County Board of Supervisors limited the amount of groundwater that could be pumped as a substitute for transferred surface water to the seller's maximum use during the ten preceding years. The County also received from each seller two percent of the seller's gross revenues from the transfers to the Water Bank. DWR agreed to reimburse the sellers for 50 percent of their monitoring expenses up to a fixed limit and for all of the seller's costs of making the two percent gross receipts payment to the County.⁷²

The balance of the water transferred to the Water Bank—approximately 17 percent of the total supplies—was obtained through four contracts for the purchase of previously stored water that was surplus to the projected needs of the transferors.⁷³ Of the 139,580 acre-feet of stored water, 129,200 acre-feet was acquired from the Yuba County Water Agency, which was a source of supplemental water throughout the 1987-1992 drought.⁷⁴ The contract with Yuba County provided for the release of 99,200 acre-feet to the Water Bank in 1991, with the remaining 30,000 to be stored in New Bullards Bar Reservoir on behalf of DWR for release in 1992.⁷⁵ In addition, Yuba County agreed to transfer another 28,000 acre-feet to DWR for distribution to

66. *Id.*

67. HOWITT REPORT, *supra* note 54, at 12.

68. 1992 DWR REPORT, *supra* note 7, at 8.

69. *Id.*; HOWITT REPORT, *supra* note 54, at 12.

70. 1992 DWR REPORT, *supra* note 7, at 8.

71. HOWITT REPORT, *supra* note 54, at 12.

72. *See infra* part II.E(1).

73. 1992 DWR REPORT, *supra* note 7, at 8.

74. HOWITT REPORT, *supra* note 54, at 10; *see Gray, supra* note 2, at 12.

75. HOWITT REPORT, *supra* note 54, at 13.

the Department of Fish and Game.⁷⁶ The price for water transferred to the Water bank was \$125 per acre-foot. The price for water transferred to the Department of Fish and Game was \$50 per acre-foot.⁷⁷

DWR offered to sell water acquired by the Water Bank to "any corporation, mutual water company, or public agency . . . that had responsibility to supply water for agricultural, municipal and industrial, fish and wildlife, or other used in California in 1991."⁷⁸ In accordance with the Drought Action Team's recommendation that water held by the Water Bank should be allocated for the purpose of "firming up urban supplies to minimum levels, meeting critical agricultural uses, preservation of fish and wildlife, and carryover storage for 1992,"⁷⁹ however, the Department established a set of priorities to guide its selection of purchasers. These priorities, listed in order, were:

1. Emergency needs, such as related to health and safety.
2. Areas with critical needs, which DWR defined as "urban users with less than a 75 percent water supply; agricultural users who needed water to assure survival of permanent or high-value crops; and fish and wildlife resources."
3. "Other critical needs, such as water to meet critical needs for the first few months of 1992, until next year's water supplies are known and available."
4. Additional supplies for Water Bank participants that purchased water for critical needs and which "need additional supplies to reduce substantial economic impacts resulting from reduced water supplies."
5. Carryover storage for the State Water Project.⁸⁰

Eighteen water agencies initially joined the Water Bank as potential purchasers by submitting "estimates of critical needs" on April 1, 1991.⁸¹ Twelve of these agencies ultimately entered into contracts to purchase 389,970 acre-feet of water from the Bank.⁸² The discrepancy between the 821,045 acre-feet

76. *Id.*

77. *Id.*

78. *Id.* at 5.

79. DAT REPORT, *supra* note 8, at viii.

80. 1992 DWR REPORT, *supra* note 7, at 9.

81. HOWITT REPORT, *supra* note 54, at 7, Table 1.

82. Listed from north to south, the 12 purchasing agencies were:

<u>Agency</u>	<u>Acre Feet</u>
American Canyon County Water District.....	370
Contra Costa Water District	6,717
San Francisco Water Department.....	50,000
Alameda County Water District	12,800
Alameda County Food Control and	

acquired by the Water Bank and the 389,970 allocated to the twelve purchasers is the result of two factors. First, there are significant carriage losses incurred when water is transported through the Delta for diversion at Clifton Court Forebay. These carriage losses, which usually amount to approximately 20 percent of the water moved through the Delta, were only about 14 percent of the water transferred through the Delta pursuant to the 1991 Water Bank.⁸³ Second, the heavy and unexpected March rains decreased demand, particularly for "non-critical" uses. As a result, DWR retained approximately 250,000 acre-feet of the acquired water as carryover storage for 1992.⁸⁴ Indeed, given the various uncertainties—the amount of water that would be offered for sale to the Water Bank, the amount of water that would be requested for allocation from the Bank, whether a market-clearing price would be established, and the unpredictability of the weather—is was essential that DWR stand ready to purchase the surplus water remaining in the Water Bank at the close of the 1991 water year.

The base purchase price for water was \$175 per acre-foot.⁸⁵ This reflected the \$125 per acre-foot cost of acquiring the water plus \$45 per acre-foot for carriage losses and technical corrections and administrative

Water Conservation District.....	500
Santa Clara Valley Water District	19,750
Oak Flat Water District	975
Westlands Water District.....	13,820
Dudley Ridge Water District.....	13,805
Kern County Water District	53,797
Crestline-Lake Arrowhead Water Agency	236
Metropolitan Water District of Southern California.....	215,000

1992 DWR REPORT, *supra* note 7, at 6.

83. According to DWR, of the 821,045 acre-feet acquired by the Water Bank, [a]pproximately 165,000 acre-feet was subtracted due to Delta carriage water requirements and technical corrections . . . For the 1991 Drought Water Bank, [carriage losses] were calculated to be 14 percent, a melded overall rate which reflected the various specific sources of water for the Bank. The technical corrections were in two components. The first component was an after-the-fact fine tuning of the crop consumptive use numbers between the Department and the Bureau of Reclamation. The second component was a correction for actual rainfall, which resulted in a decrease of about 30,000 acre-feet from the total purchased amount. This left a net of about 655,000 acre-feet of water that could be delivered, which was apportioned 390,000 acre-feet to meet critical water needs of the buyers, and 265,000 acre-feet for State Water project carryover storage.

Letter from Robert G. Potter, Chief Deputy Director, California Department of Water Resources 2 (Sept. 8, 1993) (on file with author).

84. HOWITT REPORT, *supra* note 54, at 63. For a more detailed explanation of how DWR allocated water to the participating agencies, *see id.* at 5-10.

85. 1992 DWR REPORT, *supra* note 7, at 9.

expenses of \$5 per acre-foot.⁸⁶ Most of the water was delivered through SWP facilities. Buyers who used these facilities also paid for the operation and maintenance costs incurred by DWR in delivering the water. Purchasers that were not SWP contractors also paid a "use of facilities fee, which was a proportional share of the capital and annual costs associated with SWP facilities used to make the transfer."⁸⁷

Although the reduced diversions and retention of water sold to the Water Bank provided some benefits to Sacramento River fisheries and other instream uses,⁸⁸ the increased pumping of water from the Delta for delivery to the Water Bank's customers had threatened Delta water quality and posed serious problems for several species of fish. Initially, DWR and the Bureau of Reclamation proposed to lessen the ambient water quality standards for chlorides at three locations in the Delta—Rock Slough, the CVP Tracy Pumping Plant, and Clifton Court Forebay.⁸⁹ The parties withdrew their petition, however, when the unexpected March rains provided the flows needed to achieve the existing Delta water quality standards.⁹⁰ Nevertheless, because five years of drought had "already placed the Delta in a vulnerable condition," the State Water Resources Control Board asked DWR to prepare an evaluation of the effects of Water Bank transfers on Delta fisheries.⁹¹ From this study, DWR determined that increased pumping from the Delta associated with the Water Bank would increase the entrainment losses of American shad, Delta smelt, and striped bass, particularly during the months of June, July, and August.⁹² Accordingly, DWR decided to withdraw water from storage in San Luis Reservoir to fulfill its contract obligations to the Water Bank purchasers south of that facility, and to defer the increased

86. Letter from Robert G. Potter, Chief Deputy Director, California Department of Water Resources 2 (Sept 8, 1992) (on file with author). "[T]he Delta carriage water requirement is a quantity of additional water needed as Delta outflow to maintain compliance with Delta water quality standards for a given increase in export pumping under conditions of reverse flow in the western Delta." *Id.*

87. *Id.*

88. See *infra* text accompanying notes 209-10.

89. CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, NOTICE OF EMERGENCY PUBLIC HEARING AND BOARD MEETING: CONSIDERATION OF DROUGHT-RELATED EMERGENCY WATER RIGHT ORDER AND RELATED ACTIONS IN RESPONSE TO A REQUEST FOR A HEARING FROM THE DEPARTMENT OF WATER RESOURCES, ACTIONS TO BE CONSIDERED (1991); see CALIFORNIA DEPARTMENT OF WATER RESOURCES, DELTA PROTECTIONS: EFFECT OF TEMPORARY MODIFICATIONS OF WATER RIGHT PERMITS 8-9 (1991).

90. 1992 DWR REPORT, *supra* note 7, at 10.

91. *Id.*

92. Memorandum from Randall H. Brown to Larry Gage: Fish Impacts of Water Bank Delta Transfer, California Department of Water Resources (July 3, 1991) [hereinafter "Fish Impacts Memorandum"] (on file with author).

diversion of water from the Delta until September and October.⁹³ DWR then replaced the water taken from San Luis Reservoir in the summer with the water diverted from the Delta during the fall months.⁹⁴

D. Evaluations of the Water Bank

By virtually all accounts, the 1991 Water Bank was a success. According to DWR, the Bank "is an example of what can be created with resourcefulness and cooperation. Over 800,000 acre-feet of water was developed in a short time because all of the participants were committed to the program's success."⁹⁵ Moreover, the "large-scale water transfer program was implemented in less than 100 days with the help of the entire water community, and important links with local water interests and local government were established for future programs."⁹⁶

Outside observers have been equally complimentary. An influential analysis of the Water Bank concludes that while "not everyone was supportive of water banking, the consensus was that the Bank was successful, particularly given the emergency circumstances under which it was created . . . DWR staff, especially those leading the Bank's management, were singled out by a number of participants for high praise."⁹⁷ The interviews conducted for this study confirm this conclusion.⁹⁸

II. A Legal Analysis of the 1991 Water Bank

The 1991 Water Bank achieved the primary purpose for which it was created—to reallocate developed water supplied on a short-term basis from users who either could do without or had alternative water sources to users located in other areas of California for whom continued shortages threatened severe hardship. As DWR has observed, because of the existence of the Water Bank, the implementation of "stringent conservation practices, plentiful March rains, and a mild summer, conditions that could have been disastrous in some areas were made bearable."⁹⁹

Yet, the transfer of water to areas with critical supply deficiencies was only one of several goals set forth by the Drought Action Team in its report to the Governor recommending the formation of a Water Bank. These other goals were:

93. 1992 DWR REPORT, *supra* note 7, at 10.

94. *Id.* at 11.

95. *Id.* at 19.

96. *Id.*

97. HOWITT REPORT, *supra* note 54, at 21.

98. *See infra* part II.E-F.

99. 1992 DWR REPORT *supra* note 7, at 19.

1. Protection of the water rights of transferors of water to the Water Bank.
2. Preservation of fish and wildlife.
3. Mitigation of the effects of transfer on third-parties.
4. Recognition of county-of-origin and area-of-origin laws.¹⁰⁰

In marked contrast with the successful transfer of water to areas of critical need, it is far less clear whether the Water Bank fulfilled these other policies and promises. Indeed, while the interviews conducted for this paper confirm the conclusion that the administrators of the Water Bank undertook a Herculean task with alacrity *and* sensitivity for the interest of the counties from which the water was transferred and other third-parties affected by the transfer, several critical legal decisions were made that reduced the probability that the last three of the Drought Action Team's goals would be achieved.

As the remainder of this paper will show, through both existing laws governing water transfers and special legislation enacted to encourage transfers to the Water Bank, DWR was able to provide iron-clad guarantees to transferors that the sale of water to the Bank would not in any way jeopardize their water rights. Yet, because the transfers of water to the Bank overwhelmingly involved surface water held pursuant to riparian right and surface water for which groundwater was substituted, both the State Water Resources Control Board and the laws that establish a process for protecting third-party water rights holders, fish and wildlife, instream flows, and other interests within the areas-of-origin were effectively removed from the transfer process. Moreover, because of the decision legally to characterize the transfers for which groundwater was substituted as transfer of surface water for one purpose and transfers of groundwater for another, the laws designed to protect the counties in which groundwater originates were circumvented.

As explained below, all of these legal decisions may have been justifiable under the perceived emergency conditions that existed at the time the Water Bank was established and the transfer contracts written. But they raise troubling questions about the efficacy of laws enacted to balance the interests of water users who participate in the market and the interests of those who are not parties to the transfer contracts that formed the Water Bank.

A. The Legal Backdrop

An essential prerequisite to the 1991 Water Bank was the enactment over the preceding twelve years of legislation that encourages voluntary transfers of water by explicitly authorizing the sale of conserved and surplus water and by protecting the water rights of users who choose to transfer water to others. The surface water transferred to the Water Bank was held pursuant to five types of rights: riparian rights; pre-1914 appropriative rights;

100. DAT REPORT, *supra* note 8, at viii-ix.

riparian and pre-1914 appropriative rights now embodied in CVP contracts with the United States Bureau of Reclamation; permitted or licensed appropriative rights administered by the State Water Resources Control Board; and entitlements to water based on the user's membership in a local water agency. Each of these categories is subject to different legal rules regarding nonuse and forfeiture.

For the riparians, including the CVP water rights settlement contractors, participation in the Water Bank posed little risk, because riparian rights may not be lost or diminished by nonuse.¹⁰¹ Therefore, the decision to forego water for one growing season would not jeopardize the transferors' future water rights.¹⁰²

Because appropriative rights *can* be lost by nonuse,¹⁰³ the Legislature enacted a statute in 1979, which declares the conservation and transfer of water to be a beneficial use and that prohibits the forfeiture of the water not used as a result of these practices. Section 1011 of the Water Code permits an appropriator to reduce its water use through the implementation of conservation measures and to retain full rights to the conserved water. The statute defines conservation broadly as "the use of less water to accomplish the same purpose or purposes of use allowed under the existing appropriative right."¹⁰⁴ Moreover, water saved as a result of "land fallowing or crop rotation" qualifies under the statute as "conserved water."¹⁰⁵ According to subsection (a), the "cessation or reduction in the use of such appropriated water shall be deemed equivalent to a beneficial use" of the conserved water.¹⁰⁶ Subsection (b) then authorizes the sale, lease, or exchange of the conserved water, subject to the general water transfer

101. *In re Waters of Long Valley Creek System*, 25 Cal. 3d 339, 357-358 (1979).

102. For the participating riparians, the most significant legal questions was whether they could transfer their water to the Bank without violating the riparian land and watershed limitation of the riparian rights system, see, *Anaheim Union Water Co. v. Fuller*, 150 Cal. 327 (1907). The way in which the DWR avoided these problems is discussed below in Part II.C. The CVP water rights settlement contractors had the additional problem of persuading the Bureau of Reclamation that at least the water rights settlement portion of their contracts should be transferable under the provisions of California law and not be subject to the Bureau's restrictions on transfers of "project" water. This problem will be analyzed in part II.D.

103. California Water Code § 1241 provides that appropriative rights held pursuant to permit or license are subject to forfeiture if the water is not beneficially used for a period of five years and that "such unused water may revert to the public and shall, if reverted, be regarded as unappropriated water." CAL. WATER CODE § 1241 (West Supp. 1994). Pre-1914 appropriative rights also may be forfeited if the water is not beneficially used for a period of five years. *Smith v. Hawkins*, 110 Cal. 122, 127 (1895).

104. CAL. WATER CODE § 1011(1) (West Supp. 1994).

105. *Id.*

106. *Id.*

laws.¹⁰⁷ The Legislature sought to guarantee the water rights of appropriators who conserve and transfer water pursuant to this section by declaring that "[n]o forfeiture of the appropriative right to the water conserved shall occur upon the lapse of the [applicable] forfeiture period."¹⁰⁸

Several other provisions of the Water Code address the rights of individuals who do not themselves own water rights, but instead receive their water from a local water agency. Section 382 declares that "[n]otwithstanding any other provision of law, every local or regional public agency authorized by law to serve water to the inhabitants of the agency may sell, lease, exchange, or otherwise transfer water that is surplus to the needs of the agency's water users for use outside the agency."¹⁰⁹ Section 383 then defines "surplus water" in three different ways. Subsection (a) authorizes the agency to transfer water "which the agency finds will be in excess of the needs of water users within the agency for the duration of the transfer."¹¹⁰ Subsection (b) permits the transfer of water conserved by individual users within the agency where the agency, rather than the user, holds the water right.¹¹¹ Subsection (c) authorizes the transfer of conserved water by individual users within an agency who hold their own water rights. It provides that "the water user and the agency [may] agree, upon mutually satisfactory terms, that the water user will forego use for the period of time specified in the agreement" with the transferee and directs that the agency "shall act as agent for the water user to effect the transfer."¹¹² Transfers made pursuant to these provisions are subject to the general transfer laws, including the requirement that any change in the point of diversion, place of use, or purpose of use set forth in the transferor's permit or license be approved by the State Water Resources Control Board.¹¹³

Although these sections of the Water Code do not contain the same type of "anti-forfeiture" guarantees provided by section 1011, they are subject to

107. *Id.* § 1011(b). As discussed below, the other transfer laws grant the State Water Resources Control Board jurisdiction over all transfers of surface water held pursuant to a permit or license that require a change in the point of diversion, place of use, or purpose of use set forth in the permit or license. Transfers of groundwater and of surface water held pursuant to a riparian or pre-1914 appropriative right are categorically exempt from this aspect of the Board's jurisdiction. *See infra* part II.B.

108. CAL. WATER CODE § 1011(a) (West Supp. 1994).

109. *Id.* § 382(a).

110. *Id.* § 383(a).

111. *Id.* § 383(b).

112. *Id.* § 383(c).

113. *Id.* §§ 384 & 386; *see infra* Part II.B. In addition, before engaging in a transfer to users served by another water agency, the transferor must obtain the consent of the "recipient" agency. CAL. WATER CODE § 385 (West Supp. 1994). Inasmuch as all of the transfers were to the Water Bank for redistribution to the participating purchasing agencies, this requirement posed no problems.

section 1244 of the Code, which establishes a general protection of the water rights of persons or agencies that transfer water. Section 1244 declares:

The sale, lease, exchange, or transfer of water or water rights, in itself, shall not constitute evidence of waste or unreasonable use, unreasonable method of use, or unreasonable method of diversion and shall not affect any determination of forfeiture applicable to water appropriated pursuant to the Water Commission Act or this code or water appropriated prior to December 19, 1914.¹¹⁴

Taken together, these statutes "afford potential transferors a reasonable assurance . . . that by offering water for sale, entering into negotiations, or conducting studies of potential conservation yields within their service areas, they will not lose their water rights. Neither the transfer nor the negotiations leading up to the transfer may be used as evidence that the transferor's [water] rights exceed its actual reasonable needs."¹¹⁵

Thus, of all the problems faced by DWR in the days leading up to the formation of the Water Bank, the issue of least consequence should have been the fear that by participating in the Bank sellers would subject their water rights to the risk of forfeiture of divestment based on waste or unreasonable use. Yet, in hearings conducted in January 1991, the State Water Resource Control Board "heard testimony that some water users may be afraid to transfer water for fear of prejudicing their water rights."¹¹⁶

Consequently, to assuage any lingering doubts about the legal effects of selling water to the Water Bank, the Legislature convened an "Extraordinary Session" in March and April 1991 to enact special transfer legislation to encourage transfers to the Bank.¹¹⁷ Two of these statutes are germane to this analysis. Both laws expired on January 1, 1993.

Assembly Bill No. 9, sponsored by Assemblyman Cortese, authorized any water supplier to transfer water to the Water Bank or to users outside the water supplier's service area if two requirements were satisfied:

114. CAL. WATER CODE § 1244 (West Supp. 1994).

115. Brian E. Gray, *A Primer on California Water Transfer Law*, 31 ARIZ. L. REV. 745, 774 (1989).

116. DAT REPORT, *supra* note 8, at 29.

117. 1991 Cal. Stat. ch. IX-5X. Because the Legislature declared these acts to be "urgency statute[s] necessary for the immediate preservation of the public peace, health, or safety within the meaning of Article IV of the [California] Constitution," they took effect immediately upon the Governor's signature. *See id.* ch. IX § 9.

1. "The governing body of the water supplier determines that it is in the best interest of the water supplier to transfer the water."
2. "The water supplier has allocated to the water users within its service area the water available for 1991 and no user will receive less than the amount provided by that allocation without that user's consent."¹¹⁸

The statute covered the types of transfers to the Water Bank that DWR was in the process of negotiating. It applied only to water made available by conservation or use of an alternative source of supply and to water "developed pursuant to a contract by a water user to reduce water use below the user's allocation or to eliminate the use of water during 1991, including a contract to grow crops without the use of water from the water supplier, to fallow land, or to undertake other action to eliminate water use."¹¹⁹ The law also provided that a participating water supplier could transfer water to the Water Bank "whether or not the water proposed to be transferred is surplus to the needs within the service area of the water supplier."¹²⁰

Assembly Bill No. 10, authored by Assemblyman Costa, was designed to protect the water rights of those who sold water to the Water Bank. It provided simply that "[n]o temporary transfer of water made pursuant to any provision of law for drought relief in calendar years 1991 and 1992 shall affect any water rights."¹²¹

The Department of Water Resources has stated that the "Drought Water Bank probably would not have gotten off the ground as quickly as it did had it not been for [these] two key pieces of legislation."¹²² This is probably an accurate assessment of AB 9's authorization of transfers of water that is not necessarily surplus to the needs of other users within the service area of the transferor. As one attorney noted at the time, under the circumstances, there was "no way that the board [of directors of a water district] could make a declaration there are water surpluses."¹²³ The new

118. *Id.* ch. IX, § 1.

119. *Id.* ch. IX, § 2.

120. *Id.* ch. IX, § 3.

121. *Id.* ch. 2X, § 1(a).

122. 1992 DWR REPORT, *supra* note 7, at 15.

123. David Newdorf, *The Scramble for Water*, S.F. RECORDER, Mar. 4, 1991, at 1 (quoting Edward Tiedemann). On the other hand, § 383(c) of the Water Code already authorized the transfer of water that individual users choose (with the water agency's consent) not to use. CAL. WATER CODE § 383(c). (West Supp. 1994). Section 383 defines this water as "surplus" notwithstanding the claims of other members of the agency. *Id.* § 383; *see supra* text accompanying notes 110-12. A water agency's board of directors therefore *could* make a declaration that "surplus water" existed within the agency, which could be transferred to the

legislation thus resolved the vexing legal question whether non-participating member of a local water agency could claim water that the agency or another member proposed to conserve and transfer to users located outside the agency.¹²⁴

At first blush, it is difficult to agree with the Department's conclusion that AB 10 was necessary to the creation of the Water Bank. As noted above, existing law already provided that the decision to conserve or to transfer water could not be used as evidence of unreasonable use and that, following a transfer, all rights revert to the transferor. Yet, statutes do not always alter human behavior in the way in which the Legislature intended, and there remained in early 1991 a widespread belief that participants in the Water Bank would incur a substantial risk of forfeiting their rights to the water offered for sale. In the words of the Manager of the Water Bank, "Water users were still apprehensive. Our conclusion was tied to *perceptions* of prospective sellers, who felt more assured after [AB 9 and AB 10 were enacted] and thus were more willing to sell."¹²⁵ An attorney who represented a number of transferors to the 1991 Water Bank, and who helped to draft many of the transfer statutes discussed in this section, confirms this analysis. In his discussions "with growers in water districts to encourage participation in the water bank," he observes, "there was a tremendous concern about water rights protection. The more statutes you could show them the more it seemed to help. So that was an important aspect of the special legislation."¹²⁶

The temporary statutes were useful, perhaps even essential, to the creation of the 1991 Water Bank, because they provided the last measure of transfer authority and water rights protection that participating farmers and water agencies needed to convince them to sell some of their supplies to the Bank. For this reason, the Legislature has made the provisions of the Assembly Bills 9 and 10 permanent features of California water transfer law.¹²⁷

Water Bank. The real problem, however, was that the legal definition of surplus water under § 383 did not correspond with the common understanding of the term "surplus." For this reason, although Assembly Bill 9 did not significantly change the legal powers of the water agencies, it did clarify their water transfer authority as a practical matter.

124. See Brian E. Gray, Bruce c. Driver & Richard W. Wahl, *The Transferability of Federal Reclamation Water: A Case Study of California's San Joaquin Valley*, 21 ENVTL. L. 911, 972-76 (1991).

125. Letter from Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Jan. 6, 1993) (emphasis in original) (on file with author).

126. UNIVERSITY OF CALIFORNIA AGRICULTURAL ISSUES CENTER AND WATER RESOURCES CENTER, CALIFORNIA WATER TRANSFERS: GAINERS AND LOSERS IN TWO NORTHERN COUNTIES 60 (1992) (hereinafter "U.C. CONFERENCE REPORT") (comments of Paul M. Bartkiewicz).

127. 1992 Cal. Stat. ch. 481, § 1. This statute provides:

A water supplier may contract with a state drought water bank or with any other state or local water supplier or user inside or outside the service area of the water supplier to transfer, or store as part of a transfer, water if the water

B. The Jurisdiction of the State Water Resources Control Board

Although the State Water Resources Control Board is the principal regulator of surface water use in California, none of the transfers of water from Yolo and Solano Counties to the 1991 Water Bank were reviewed by the Board. Indeed, of the 351 contracts to sell water to the 1991 Water Bank, only two—those with the Yuba County Water Agency and the Oroville-Wyandotte Irrigation District—were subject to the Board's jurisdiction.¹²⁸

supplier has allocated to the water users within its service area the water available for the water year, and no other user will receive less than the amount provide by that allocation or by otherwise unreasonably adversely affected without that user's consent.

CAL. WATER CODE § 1745.04 (West Supp. 1994). The water that may be transferred pursuant to § 1735.04 is defined as (1) stored water, (2) water that is made available by "[c]onservation or alternate water supply measures taken by individual water users or by the water supplier"; and (3) water that is "developed" pursuant to a contract "to reduce water use below the user's allocation or to eliminate the use of water during the water year." *Id.* § 1745.05. The last category includes contracts "to grow crops without the use of water from the water supplier, to fallow land, or to undertake other action to reduce or eliminate water use." *Id.* § 1745.05(a)(2). Thus, the statute expressly recognizes the types of contracts used by DWR in the 1991 Water Bank. However, it limits the amount of water that may be transferred as a result of land fallowing to 20 percent of the water that would have been "applied or stored" by the water supplier during any hydrological year in the absence of a contract under §§ 1745.04 and 1745.06, unless the water supplier approves a larger percentage following a public hearing. *Id.* § 1745.05(b).

The statute authorizes the transfer of water under § 1745.04 "whether or not the water proposed to be transferred is surplus to the needs within the service area of the supplier." *Id.* § 1745.06. §§ 1745.04 and 1745.06 state that members may not make such claims to water that has already been allocated to the transferor member (or which the local agency has stored and thereby reserved from allocation), unless the objecting members can prove that they would be "unreasonably adversely affected" by the proposed transfer. *Id.* §§ 1745.04, 1745.06.

The new law declares that transfers of water made pursuant to § 1745.04 "or any other provision of law" are beneficial uses of water and shall not "cause a forfeiture, diminution, or impairment of any water rights." *Id.* § 1745.07. These declarations are reiterative of §§ 1011 and 1244 of the California Water Code. *See supra* text accompanying notes 95-00 & 104-5. The Legislature also specified that landowners within a local water agency who are also on the agency's board of directors may enter into water transfer contracts with the agency. CAL. WATER CODE § 1745.03 (West Supp. 1994); U.C. CONFERENCE REPORT, *supra* note 126, at 60. (comments of Paul M. Bartkiewicz). Finally, the AB 2897 established criteria for the transfer of surface water for which groundwater is substituted. These provisions will be discussed in *infra* part II.E.

128. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992); Telephone interview with Walter Pettit, Executive Director of the State Water Resources Control Board (Aug. 14, 1992).

This rather startling situation is the product of two factors. First, much of the water transferred to the Bank from Yolo and Solano Counties is held pursuant to riparian right or pre-1914 appropriative right. These rights are categorically exempt from the Board's permitting and licensing authority and from its jurisdiction over changes in water rights.¹²⁹ Second, the Department of Water Resources, with the acquiescence of the State Water Resources Control Board, characterized the remaining transfers in a manner that avoided the jurisdiction that the Board does have over changes in permitted and licensed appropriative rights.

Under the existing water transfer laws, the Board must approve all transfers of surface water appropriated pursuant to a permit or license issued by the Board where accomplishment of a transfer requires a change in the point of diversion, place of use, or purpose of use set forth in the transferor's permit or license.¹³⁰ Two groups of transferors to the 1991 Water Bank fall into this category.

First, many of the transferors located along the Sacramento River receive their water under contracts with the United States Bureau of Reclamation.¹³¹ The Bureau supplies these contractors with water it appropriates at the Shasta and Trinity units of the Central Valley Project pursuant to permits issued by the State Water Resources Control Board.¹³² Because these contractors held riparian and pre-1914 appropriative rights that predated the construction of the CVP, their contracts with the Bureau recognize their pre-project rights as a "base supply."

The Bureau of Reclamation allowed the CVP water rights settlement contractors to transfer their base supplies to the 1991 Water Bank. In acquiring this water, DWR determined that the water rights settlement contractors' base supplies are legally equivalent to the riparian and pre-1914 appropriative rights that the contractor held before the CVP was constructed. Based on this legal characterization of the CVP base supplies, the Department argued that the transfers were exempt from the Board's jurisdiction because the transfers involved riparian and pre-1914 appropriative rights, rather than water held by the Bureau under permits

129. CAL. WATER CODE §§ 1201, 1706 (West 1971); *see* Gray, *supra* note 115, at 768.

130. CAL. WATER CODE § 1701 (West 1971); *see also id.* § 1435 (West, Supp. 1994) (temporary urgency changes); *id.* § 1723 (temporary changes—one year or less); *id.* § 1735 (long-term transfers—more than one year).

131. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992); Telephone interview with Neil W. Schild, Assistant Director of the Mid-Pacific Region of the United States Bureau of Reclamation (Aug. 10, 1992).

132. CALIFORNIA STATE WATER RIGHTS BOARD, WATER RIGHT DECISION 990 (1961); *see* United States v. State Water Resources Control Board, 182 Cal. App. 3d 82, 106 (1st Dist. 1986).

issued by the Board.¹³³ These transfers should have been subject to the Board's jurisdiction, because the transfers (1) altered the riparian and pre-1914 appropriative rights of the CVP water rights settlement contractors and (2) changed both the point of diversion and place of use set forth in the Bureau's permits. The Board did not assert jurisdiction over transfers of CVP water to the Water Bank, however, because it failed to focus on these legal issues at the time it approved the CVP transfers.¹³⁴

Second, excluding water used under riparian right and water supplied by the Bureau of Reclamation pursuant to the water rights settlement contracts, the remainder of the water transferred to the Water Bank from Yolo and Solano Counties is appropriated pursuant to permits of licenses granted by the Board. According to the statutes described above, these transfers would seem clearly to have fallen within the Board's jurisdiction. All of these transfers were accomplished, however, by the substitution of groundwater as a replacement for the surface water sold by the transferor.¹³⁵ On the basis of this substitution of supply sources, DWR characterized these transfers as sales of groundwater, rather than surface water.¹³⁶ As such, the transfers were outside the Board's jurisdiction.¹³⁷

Taken together, these legal characterizations of the water sold to the Water bank reduced the role of the State Water Resources Control Board almost to nothing. Indeed, because all of the transfers to the Bank from Yolo and Solano Counties involved water held under riparian right, pre-1914 appropriative rights, CVP "base supply", or permitted or licensed appropriative rights for which groundwater was substituted,¹³⁸ these legal decisions removed the Board completely from the process of evaluating the effects of the Water Bank transfers on the two counties. The consequence of this effort to remove as many of the surface water transfers as possible from the Board's jurisdiction was to exempt most of the operations of the Water bank from a variety of laws enacted to protect third-parties from harm.

The Water Code authorizes the Board to approve "temporary changes" in permits and licenses, which it defines as a change in the point of diversion, place of use, or purpose of use "due to a transfer or exchange of water or water rights if the transfer would only involve the amount of water

133. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992); *see infra* part III.D.

134. *See infra* part II.D.

135. Telephone interview with Steve Macaulay, Manger of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992); Telephone interview with Walter Pettit, Executive Director of the State Water Resources Control Board (Aug. 14, 1992).

136. *Id.*

137. *See infra* part II.E.

138. Telephone interview with Bob Aldridge, Drought Water Bank, California Department of Water Resources (Aug. 8, 1992).

that would have been consumptively used or stored by the permittee or licensee in the absence of the proposed temporary change."¹³⁹ Before the Board may grant the petition, it must make both of the following factual and policy determinations:

- (1) The proposed temporary change would not injure any legal user of water, during any potential hydrological condition, through resulting significant changes in water quantity, water quality, timing of diversion or use, consumptive use of the water, reduction in return flows, or reduction in the availability of water within the watershed of the transferor.
- (2) The proposed temporary change would not unreasonably affect fish, wildlife, or other instream beneficial uses.¹⁴⁰

The statutes that govern transfers of conserved and surplus water contain similar directives and also require the Board to determine that the transfer would not "unreasonably affect the overall economy of the area from which the water is being transferred."¹⁴¹ These laws represent the only specific statutory protections for third-parties that are potentially affected by

139. CAL. WATER CODE § 1725 (West Supp. 1994). The law defines "consumptively used" as "the amount of water which has been consumed through the use of evapotranspiration, has percolated underground, or has been otherwise removed from use in the downstream water supply as a result of direct diversion." *Id.* A "temporary change" is a change in the "point of diversion, place of use, or purpose of use" associated with a transfer or exchange of water "for a period of one year or less." *Id.* Sec. 1728.

140. *Id.* § 1727(a). The board is authorized to make these findings without conducting a public hearing. Following a determination that the proposed temporary change would not violate either of the criteria set forth in the text, the Board must notify the petitioner and the criteria set forth in the text, the Board must notify the petitioner and the third-party legal users of water identified in its consideration of the petition that it has approved the petition. The temporary change then becomes effective five days after the Board's order of approval is issued. *Id.* § 1727(b). If its own evaluation of the available information about the potential effects of the proposed temporary change does not enable the Board to make both findings within 60 days following receipt of the notice, however, it must conduct a noticed public hearing on the proposal. *Id.* § 1727(c). The Board's decision is subject to judicial review by writ of mandate. *Id.* § 1730. Temporary changes are exempt from the requirements of the California Environmental Quality Act (CAL. PUB. RES. CODE §§ 21000 *et seq.*). *Id.* § 1729.

141. *Id.* § 386. The Board has not yet evaluated a proposed transfer under this provision, because no one who has applied to transfer water under the conserved and surplus water transfer statutes, *Id.* §§ 380-387. Telephone interview with Andrew H. Sawyer, Assistant Chief Counsel to the State Water Resources Control Board (Mar. 1, 1993).

water transfers.¹⁴² Thus, if the laws are not invoked, there is no formal process for evaluating the effects of a proposed transfer on other water rights holders, fish and wildlife, instream uses, and other interests of the area from which the water will be transferred.¹⁴³

C. Transfers of Water Held Pursuant to Riparian Right

As noted above, because riparian rights are not subject to the Board's permit and license jurisdiction, changes in the exercise of such rights also are exempt from the Board's authority.¹⁴⁴ Thus, the transfers to the Water Bank of water held under riparian right do not raise questions concerning the Board's regulatory jurisdiction. Rather, these transfers present the more fundamental question of whether DWR violated the general limitation of the riparian system that prohibits the use of water held under riparian right on non-riparian land and on land that is not within the watershed-of-origin.¹⁴⁵ For all of the water held pursuant to riparian right that was sold to the Water Bank was transferred out of the Sacramento River and Delta watersheds to the South Bay, to the San Joaquin Valley, and to southern California.¹⁴⁶

The administrators of the Water Bank dealt with this legal difficulty in a creative and convincing way. According to DWR, the riparians who sold to the Bank did not transfer water, because to do so would violate the proscriptions of non-riparian and out-of-watershed use. Rather, the riparians simply agreed not to divert the water that they normally would have used, which left that water in the Sacramento River and Delta channels unclaimed by any water rights holder. DWR then took advantage of the unused water for the purpose of meeting its obligations to maintain Delta water quality.¹⁴⁷ This made available SWP water stored in Oroville Reservoir for use in the

142. See Gray, *supra* note 155, at 771-79.

143. The ways in which DWR did consider and attempt to protect third-party interests, in the absence of formal review of these issues by the Board, is the subject of part II.F.

144. There are two exceptions. First, riparian rights that are quantified in a statutory adjudication, *see e.g.*, *In re Waters of Long Valley Creek Stream System*, 25 Cal. 3d 339 (1979), are transferable under the Temporary Change and Long-Term Transfer sections of the California Water Code described above. CAL. WATER CODE § 1740 (West Supp. 1994). Second, California Water Code Sec. 1707 authorizes all water right holders, including riparians, to dedicate all or a portion of their rights to instream uses "for purposes of preserving or enhancing wetlands habitat, fish and wildlife resources, or recreation in, or on, the water." *Id.* § 1707. Dedications made pursuant to this section require the approval of the State Water Resources Control Board. The Board may grant the petition only if the change: (a) will not increase the amount of water the petitioner is entitled to use, and (b) will not "unreasonably affect any legal user of water." *Id.*

145. See *Anaheim Union Water Co. v. Fuller*, 150 Cal. 327 (1907).

146. 1992 DWR REPORT, *supra* note 7, at 6; HOWITT REPORT, *supra* note 51, Table 3.

147. See CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, WATER RIGHTS DECISION 1485: SACRAMENTO-SAN JOAQUIN DELTA AND SUISUN MARSH (1978).

Water Bank. In other words, the Water Bank did not purchase *water* from the riparians. Rather, DWR acquired the *benefits of water* left in stream by the participating riparians' decision to forego the exercise of their riparian rights.¹⁴⁸

The way in which the Department of Water Resources arranged for the transfer of riparian rights was "[p]erhaps the most innovative" aspect of the operation of the Bank.¹⁴⁹ As manager of the State Water Project, DWR is responsible for releasing water from Oroville Reservoir or reducing its diversions at Clifton Court Forebay as necessary to comply with the salinity standards established by the Board in its 1978 Salinity Control Plan and accompanying water rights decision.¹⁵⁰ To comply with the Delta water quality standards, DWR is not required to release a specific quantity of water. Rather, the Department must augment the flow of water from the Sacramento River system into the Delta when the combined flow from all sources is inadequate to meet the standards. Thus, if other water users along the Sacramento River or in the Delta may reduce their diversions, and thereby allow more water from the Sacramento River system to flow into the Delta, DWR's obligation to release water from Oroville Reservoir to comply with the Delta water quality standards is concomitantly reduced. This in turn permits DWR to retain more water in storage or to move additional water through the Delta for diversion at Clifton Court Forebay.

In buying from riparians on the Sacramento River and in the Delta the promise not to divert surface water, DWR was able to accomplish the twin objectives of complying with the Delta water quality standards while having more water available for distribution within the SWP system or to the other

148. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992); Telephone interview with Walter Pettit, Executive Director of the State Water Resources Control Board (A8g. 14, 1992). For a description of the characterization of the transfer of water held pursuant to riparian right, see HOWITT REPORT, *supra* note 54, at 15-17.

149. HOWITT REPORT, *supra* note 54, at 15.

150. CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, WATER QUALITY PLAN: SACRAMENTO-SAN JOAQUIN DELTA AND SUISUN MARH (1978); CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, WATER RIGHTS DECISION 1485; SACRAMENTO-SAN JOAQUIN DELTA AND SUISUN MARSH (1978); *see* United States v. State Water Resources Control Bd., 182 Cal. App. 3d 82, 111 (1st Dist. 1986). The Bureau of Reclamation, as operator of the Central Valley Project, is jointly responsible for compliance with the Delta standards. In 1986, California and the United States agreed conjunctively to operate the SWP and the CVP to comply with the Delta standards. Agreement Between the United States of American and the State of California for the Coordinated Operation of the Central Valley Project and the State Water Project, Pub. L. No. 99-546, 100 Stat. 3050 (1986). The Board revised the ambient water quality standards for the Delta in 1992. CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, WATER QUALITY CONTROL PLAN FOR SALINITY: SAN FRANCISCO BAY/SACRAMENTO-SAN JOAQUIN DELTA ESTUARY (1991). It also proposed to extend the obligation to implement those standards to other major users of water from the Sacramento-San Joaquin River and Delta system. CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, WATER RIGHTS DECISION 1630: SAN FRANCISCO BAY/SACRAMENTO-SAN JOAQUIN DELTA ESTUARY (1993) (final draft).

purchasers from the Water Bank. By acquiring only a promise by the riparians to forego their own uses, rather than purchasing the water itself, DWR gained the use of more of its own water while avoiding the problem of transferring riparian water to non-riparian land for out-of-watershed uses. Normally, the fatal flaw in such a strategy is that, because the water foregone by the riparians legally "returns to the river," it is available for diversion by other riparians downstream. Consequently, the purchaser runs the risk that it will not be able to claim the water—or, in this case, the benefits of the water—because it will be diverted and used by more senior water rights holders. The strategy employed by the administrators of the Water Bank worked, however, because they were able to acquire promised from enough of the riparian rights holders along the lower Sacramento River and in the Delta that the risk of substantial claims on the water foregone by the participating riparians and "sold" to the Water Bank was minimal.¹⁵¹ Indeed, Water Bank officials acknowledged that the strategy likely would have failed had it been employed upriver in the Sacramento basin without the participation of downstream riparians, because the lower riparians could have claimed the water ostensibly "acquired" by the Water Bank.¹⁵²

Four conclusions may be drawn from the Water Bank's successful acquisition of the benefits of water held under riparian right. First, this creative, but rather awkward strategy was necessary to permit the Water Bank to purchase water from Sacramento River and Delta riparians. For if DWR had engaged in the more straightforward approach of simply purchasing water from riparian landowners, the contracts would have been illegal under the well-settled principles of riparian rights law.

Second, DWR's strategy of acquiring water, or the benefits of water, for the purpose of conjunctively managing the purchased water with its own supplies is a salutary feature of the Department's administration of both the SWP and the Water Bank, because the purchases increased the operational flexibility of the project. Indeed, in this respect, the acquisition and use of the benefits of foregone riparian rights closely resembles DWR's pre-1991 water transfer contracts with the Yuba County Water Agency in which the Department acquired water from New Bullard's Bar Reservoir. DWR used this water to comply with the Delta water quality standards, while simultaneously retaining more SWP water in Oroville Reservoir for release later in the year for delivery to SWP contractors.¹⁵³

Third, the purchase of a promise from lower Sacramento River and Delta riparians to forego the exercise of their own riparian rights was

151. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992); Telephone interview with Bob Aldridge, Drought Water Bank, California Department of Water Resources (Aug. 8, 1992).

152. *Id.*

153. See Gray, *supra* note 2, at 16-21.

essential to the success of the 1991 Water Bank. As noted previously, approximately 50 percent of the water sold to the Bank was made available by the fallowing of riparian land.¹⁵⁴ Moreover, acquisition of these riparian rights assured the administrators of the Water Bank that the water they acquired upriver—in this case, predominantly from surplus storage and from groundwater exchanges—would actually make it through the Delta for diversion at Clifton Court Forebay for delivery to the Water Bank customers. By purchasing the lion's share of the riparian rights along the lower Sacramento River and in the north Delta, DWR was able both to reduce the risk that the water purchased from upstream users would be claimed by downstream riparians and to enhance its ability to calculate the carriage losses incurred in transporting the purchased water through the Delta.

Fourth, the fact that the administrators of the Water Bank were able to establish a workable method of estimating the amount of water previously used by the participating riparians, which then became the basis for quantifying the "rights" that the riparians could sell to the Water Bank,¹⁵⁵ is good evidence that riparian rights can be included in the water transfer system. Although there were some objections to DWR's decision to purchase water from riparian rights holders, which was based on the concern that it would be impossible to accurately quantify each riparian's prior water use,¹⁵⁶ the experience with the 1991 Water Bank supports the legislative proposals to permit the transfer of water by riparians.¹⁵⁷

D. Transfers of Water Supplied by the Central Valley Project

As noted previously, the water supply negotiations between the Bureau of Reclamation and the CVP contractors that transferred water to the Water Bank create two types of water service. The "base supply" represents the pre-project rights of the contractor. This water is now supplied pursuant to CVP contract in recognition of the substantial control that the CVP

154. HOWITT REPORT, *supra* note 54, at 10, Figure 2.

155. The Water Bank administrators' method of estimating the amount of water previously used by riparians later became the basis for qualifying the "rights" that the riparians could sell to the Water Bank. *Id.*

156. The Bureau of Reclamation strongly voiced this objection, although it ultimately allowed its water rights settlement contractors to transfer their base supply, which includes their pre-CVP riparian rights, to the Water Bank. Telephone interview with Neil W. Schild, Assistant Director of the Mid-Pacific Region of the United States Bureau of Reclamation (Aug. 10, 1992).

157. See *e.g.*, A.B. 2090, 1991-92 Reg. Sess. § 15 (sponsored by Assemblyman Richard Katz, which proposed to direct the Board to study the feasibility of allowing the transfer of riparian water rights, including an assessment of how the Board "would quantify the amounts of water available for transfer").

exercises over the flow of water in the Sacramento River. In addition to the base supply, many CVP contactors along the Sacramento River also receive "project water." This represents the contractor's entitlement to water supplied by the CVP in excess of the contractor's pre-project water rights.¹⁵⁸

On February 14, 1991, the Bureau notified its Sacramento River contractors that, because of the continuing drought and the low storage levels in Shasta and Trinity Reservoirs, they would be subject to the reduction in water deliveries applicable throughout the CVP system. The Bureau informed the water rights settlement contractors that they would receive 75 percent of the sum of the "base" and "project" supplies.¹⁵⁹ Subsequently, a number of these contractors decided to sell water to the Water Bank and sought permission from the Bureau to transfer their supplies. Pursuant to its 1991 water transfer guidelines, the Bureau authorized the water rights settlement contractors to sell a portion of their base supply to the Water Bank, but refused to permit the transfer of any of the project water component of the contractor's supply to be transferred for use outside the CVP system.¹⁶⁰ Because many of the Water Bank customers were non-CVP contractors, this policy effectively prevented the sale of project water to the Bank.

The Bureau used its own formula to calculate the amount of each contractor's base supply that could be transferred to the Water Bank. Each water rights settlement contractor could transfer the lower of 75 percent of its base supply or the average of the high three years of historical use from 1980 through 1989.¹⁶¹ This is in marked contrast with the manner in which DWR calculated the quantity available for transfer. As described above, for water conserved as a result of fallowing, the Department multiplied the amount of land farmed during 1990 (or set aside under the federal farm commodity program, but planned for farming in 1991) by its own estimate of

158. See e.g., Sacramento River Water Right Contract No. 14-06-200-7422A Between the United States Bureau of Reclamation and Woodland Farms, Ltd. (now held by the Conaway Conservancy Group as successor-in-interest to Woodland Farms, Ltd.).

159. See e.g., Letter from Neil W. Schild, Assistant Director of the Mid-Pacific Region, United States Bureau of Reclamation, to the Conaway Conservancy Group (Feb. 14, 1991)(on file with the author). The reductions were announced in United States Bureau of Reclamation, Mid-Pacific Region, Central Valley Project Water Supply for 1991, at 1 (1991).

160. UNITED STATES BUREAU OF RECLAMATION, MID-PACIFIC REGION, 1991 CENTRAL VALLEY PROJECT WATER TRANSFER GUIDELINES, at 1 (1991); Telephone interview with Neil W. Schild, Assistant Director of the Mid-Pacific Region of the United States Bureau of Reclamation (Aug. 8, 1992); see Letter from Neil W. Schild, Assistant Director of the Mid-Pacific Region of the United States Bureau of Reclamation, to Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Jan. 27, 1992)(on file with author).

161. Letter from Neil W. Schild, Assistant Regional Director, Mid-Pacific region of the United States Bureau of Reclamation, to Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Jan 27, 1992)(on file with author).

the quantity of water consumed by the type of crop irrigated by the seller.¹⁶² For water made available by shifting to groundwater, DWR simply credited the transferor for the amount of groundwater pumped as a substitute supply.¹⁶³ Where there were conflicts between the two methods, the CVP contractor was permitted to transfer the lesser calculated amount.¹⁶⁴

The Bureau's transfer policy raises two questions. First, was it proper for the Bureau to prohibit the transfer of "project water" to the Water Bank? Second, was it lawful for the Bureau to permit the transfer of the Sacramento River water rights settlement contractor's base supplies without seeking the approval of the State Water Resources Control Board?

The decision not to allow transfers of project water to the Water Bank was based primarily on the Bureau's judgment that, with severe shortages throughout the CVP system, it would be inappropriate to approve the transfer of project water to non-CVP contractors. In other words, other CVP contractors should have the first call on the project water available within the system.¹⁶⁵ While this may have been a legitimate managerial decision regarding the proper allocation of project supplies, it does not fully explain the categorical judgment that no project water could be sold to the Water Bank. Three of the purchasers of water from the Bank are CVP contractors: the Contra Costa Water District, the Santa Clara Valley Water District, and the Westlands Water District. Together, these purchasers acquired 40,287 acre-feet from the Bank.¹⁶⁶ If CVP project water had not been sold to the Water Bank, that water could have been segregated for accounting purposes from the other water and delivered exclusively to these existing CVP contractors. This arrangement would have helped the Bureau to make up some of the supply deficiencies that existed throughout the CVP system. Moreover, because the water could have been delivered through the Bureau's existing Delta facilities, the transfer from the Sacramento River contractors to the Bay Area and San Joaquin Valley CVP contractors could have been accomplished without changing the Bureau's water rights permits and therefore without the approval of the State Water Resources Control Board.¹⁶⁷ Inasmuch as the amount of project water offered for sale by the Sacramento River water rights settlement contractors was small, however,

162. HOWITT REPORT, *supra* note 54, at 11-12; *see supra* text accompanying notes 61-64 (on file with author).

163. HOWITT REPORT, *supra* note 54, at 12.

164. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 6, 1992).

165. Telephone interview with Neil W. Schild, Assistant Director of the Mid-Pacific Region, United States Bureau of Reclamation (Aug. 10, 1992).

166. 1992 SWR REPORT, *supra* note 7, at 6.

167. *See Gray, supra* note 115, at 779-80.

the Bureau's restrictions on the transfer of such water were of little practical consequence.¹⁶⁸

The decision to permit the transfer of the Sacramento River water rights settlement contractors' base supplies poses a more important, and more difficult, legal issue. Although the water supplied to the water rights settlement contractors is technically water appropriated by the Bureau of Reclamation under its permits for the CVP, the Bureau and DWR took the position that the base supply component of this water service could be transferred without complying with the transfer laws applicable to changes in water rights permits, because the base supply represents the pre-project rights of the contractors. Inasmuch as the underlying riparian and pre-1914 appropriative rights are exempt from the Board's permit and license jurisdiction, they should not now be subject to the Board's authority over transfers of permitted rights simply because those rights are now embodied in the Bureau's water rights permits for the CVP.¹⁶⁹

There is some merit to this analysis, for there is no inherent reason why water rights that predate the CVP should lose their legal character simply because they are incorporated contractually into the CVP system. From the Bureau's perspective, the base supply is not part of the project supply created by construction of the CVP. Therefore, that water should not be included in the "pool" of water to be distributed as equitably as possible among the hundreds of CVP contractors during times of system-wide shortage. From the vantage point of the managers of the Water Bank, characterizing the base supply as "pre-project" water has the twin advantages of allowing the water to be transferred to the Water Bank in accordance with the Bureau's policies and without having to go through the change in water right procedures administered by the State Water Resources Control Board. What is curious, however, is the Board's view of this important question. For the consequence of treating the Sacramento River contractors' base supply as the legal equivalent of their pre-project rights is to relinquish jurisdiction over the transfer of such water.

168. Telephone interview with Steve Macaulay, Manager of the Drought Water bank, California Department of Water Resources (Aug. 8, 1992) For the future, Congress has directed that *all* water supplied by the CVP be transferable according to California law and additional federal statutory criteria. Central Valley Project Improvement Act, Pub. L. No. 102-575, Sections 3401-3412, 106 Stat. 4706 (1992). The transfer provisions of the Act are analyzed in Gray, *supra* note 1, at 285-95.

169. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992); Interview with Walter Pettit, Executive Director of the State Water Resources Control Board (Aug 14, 1992); Telephone interview with Neil W. Schild, Assistant Director of the Mid-Pacific Region of the United States Bureau of Reclamation (Aug. 10, 1992).

According to its Executive Director and Assistant Chief Counsel, the Board did not object to the Bureau's and DWR's legal characterization of the CVP base supplies of attempt to exercise jurisdiction over these water transfers for two reasons. First, the staff members of the Board who reviewed the contracts for the transfer of the CVP base supplies simply did not focus on this as a serious legal issue.¹⁷⁰ Second, the Board's overriding goal was expeditiously to implement the Governor's emergency drought policies. In the words of the Executive Director, "We were trying to make the Water Bank work. We were not looking for things to argue about."¹⁷¹ Rather, in reviewing the proposed transfers of the CVP base supplies, the Board's staff sought to protect third-party interests and to guard against "glaring" legal errors.¹⁷²

The proper characterization of the CVP base supply is a controversial issue. The Sacramento River water rights settlement contractors regard the base supply as water to which they continue to hold the underlying rights, even though the water is formally delivered pursuant to CVP contract. This characterization is consistent with the history of water resources development along the Sacramento River. It also affords the contractors maximum flexibility over the use and disposition of the base supply, because the water would be exempt from the permit and license and water transfer jurisdiction of the Board.¹⁷³ The Bureau of Reclamation has agreed to this characterization of the base supply as a matter of contract interpretation.¹⁷⁴ At least for purposes of the 1991 Water bank, the Department of Water Resources has adopted the same characterization of the CVP base supply. As the Manager of the Water Bank has stated, the CVP contracts "do not change pre-existing rights. Rather, they 'settle' amounts of water under such rights for the purpose of operating the CVP." He noted, however, that "[i]n the case of an adjudication, all bets are off, and the court [would] settle such rights."¹⁷⁵

In contrast, the Board does not believe that the CVP base supplies are necessarily tantamount to the pre-project riparian and pre-1914 appropriative rights of the Sacramento River contractors. As the Assistant Chief Counsel to the Board has observed, the base supply quantities set

170. Telephone interview with Walter Pettit, Executive Director, and Andrew H. Sawyer, Assistant Chief Counsel, State Water Resources Control Board, (Sept. 14, 1993).

171. Telephone interview with Walter Pettit, Executive Director of the State Water Resources Control Board, (Aug. 14, 1992).

172. Telephone interview with Walter Pettit, Executive Director of the State Water Resources Control Board, (Sept. 14, 1993).

173. See Gray, *supra* note 115, at 768 & note 161.

174. Telephone interview with Neil W. Schild, Assistant Director of the Mid-Pacific Region of the United States Board of Reclamation (Aug. 10, 1992).

175. Letter from Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (January 6, 1993)(on file with author).

forth in the CVP water rights settlement contracts are not the product of a basin-wide adjudication, and "everyone admits that the Sacramento River water right holders 'firmed up' their existing rights, particularly in dry years."¹⁷⁶ Moreover, in implementing the base supply transfers to the 1991 Water Bank, the Bureau retained water in storage for later release for the benefit of purchasers in the central and southern parts of the state. Inasmuch as storage is not part of the riparian right, the transfers from the CVP water rights settlement contractors that held pre-project riparian rights therefore could not have been accomplished consistently with the sellers' underlying riparian rights. Similarly, most of the Sacramento River water rights settlement contractors that held pre-1914 appropriative rights before the construction of the CVP had only direct diversion rights. Thus, the use of the Bureau's upstream storage capabilities to facilitate the transfers was beyond the scope of those transferors' pre-project water rights.¹⁷⁷ In short, as administered during the 1991 Water Bank, the transfer of the CVP base supplies necessarily implicated the Bureau's water rights permits for the CVP and therefore should have been subject to the jurisdiction of the Board.

The Board's staff who subsequently have looked at this issue candidly admit that the Board's legal analysis at the time was problematic. Attorneys for the Board were not closely involved in the evaluation of the CVP transfers.¹⁷⁸ Its Assistant Chief Counsel has stated that DWR and the Bureau "represented that [Board] review was not necessary, and we didn't look too closely at the theory. In fact, I'm not sure we even knew the theory."¹⁷⁹ For the future, however, both the Executive Director and the Assistant Chief Counsel agree that the Board will assert its jurisdiction over those transfers of CVP base supplies that exceed the scope of the transferors' pre-project water rights and which require a change in the points of diversion, places of use, or purposes of use set forth in the Bureau's water rights permits for the CVP.¹⁸⁰

The transfers of the CVP base supplies to the 1991 Water Bank implicated two policies that were often in tension. On the one hand, removal of those transfers from the review process administered by the Board facilitated both the creation of the Water Bank and the expeditious movement of water from areas of surplus to areas of deficiency. In view of the water supply conditions facing the state at the time this decision was

176. Telephone interview with Andrew H. Sawyer, Assistant Chief Counsel, State Water Resources Control Board (Sept. 13, 1993)(on file with author).

177. *Id.* In contrast, a "simple by-pass transfer" that did not require the use of CVP storage facilities *might* be exempt from the Board's transfer jurisdiction as within the pre-project riparian or pre-1914 appropriative rights of the transferor. *Id.*

178. *Id.*

179. *Id.*

180. Telephone interview with Walter Pettit, Executive Director, and Andrew H. Sawyer, Assistant Chief Counsel, State Water Resources Control Board (Sept. 14, 1993).

made, it is difficult to fault the Board's decision to place a premium on these water supply goals. On the other hand, the laws that govern the Board's review and approval of transfers that *are* subject to its jurisdiction provide the only means by which third parties who claim that they will be injured by a water transfer may formally object to the proposal or seek to condition the transfer on measures designed to mitigate such harm.¹⁸¹ The consequence of the Board's forbearance of authority therefore was to create a vacuum in which there existed no formal means of determining whether the CVP base supply transfers could be accomplished consistently with California's statutory transfer policies of considering the effects on third-party water rights holders, fish and wildlife, other instream uses, and other interests of the area from which the water was transferred.

E. Transfers For Which Groundwater Was Substituted

The remaining category of water that was transferred to the 1991 Water Bank was surface water held pursuant to a variety of types of rights—including permitted and licensed appropriative rights—for which the transferor substituted groundwater as a replacement water supply. As with the transfers of water held under riparian right and pursuant to CVP water rights settlement contracts, these transfers occurred without the approval of the State Water Resources Control Board.¹⁸² Yet, many of the "groundwater replacement transfers" seemingly were subject to review by the Board because they required changes in the point of diversion, place of use, and in some cases the purpose of use set forth in the transferors' permits and licenses. The Department of Water Resources nevertheless was able to avoid the Board's jurisdiction by characterizing these transfers as involving only "groundwater," over which the Board has no jurisdiction, rather than as transfers of "surface water."¹⁸³ Thus, under DWR's theory, transfers of *surface water* (which the transferors replaced through increased pumping of groundwater) were treated for legal purposes as though they were transfers of *groundwater* (which the transferors did not need because they continued to use their full surface water allotments).

As with the transfers of CVP base supplies, DWR's purpose was to purchase water for the Bank as quickly as possible, and submission of the groundwater replacement transfers to the Board would have delayed

181. See *supra* text accompanying notes 139-43.

182. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992); Telephone interview with Walter Pettit, Executive Director of the State Water Resources Control Board (Aug. 14, 1992).

183. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992).

implementation of those contracts.¹⁸⁴ The Department's solution to the "problem" of Board review, however, raised the question, however, whether the transfers would be subject to a provision of the "Protected Areas" legislation that was enacted in 1984 to protect local areas in which water originates from future exports of water that is "reasonably required to adequately supply the beneficial needs of the protected area."¹⁸⁵

Section 1220 of the Water Code stipulates that

[n]o groundwater shall be pumped for export from within the combined Sacramento and Delta-Central Sierra Basins, as defined in Department of Water Resources Bulletin 160-74, unless the pumping is in compliance with a groundwater management plan that is adopted by ordinance . . . by the county board of supervisors, in full consultation with affected water districts, and that is subsequently approved by a vote in the counties or portions of counties that overlie the groundwater basin. . . .¹⁸⁶

All of the "groundwater" transfers to the 1991 Water Bank involved water from the Sacramento Basin as defined by section 1220.¹⁸⁷ Thus, the statute would appear clearly to have been applicable to such transfers. Nonetheless, the Department of Water Resources determined that the law did not apply because, *for purposes of section 1220*, the transfers were of surface water, not groundwater.¹⁸⁸

Thus, to avoid the Board's jurisdiction under the water transfer laws, DWR defined the groundwater replacement transfers as "groundwater transfers." Yet, to circumvent the application of section 1220, the Department characterized the same transfers as "surface water transfers." The obvious legal question presented by this linguistic legerdemain is whether the Board should have permitted DWR to have it both ways—

184. *Id.*

185. CAL. WATER CODE § 1216 (West Supp. 1994).

186. *Id.* § 1220(a). An exception is made for water that has percolated into the groundwater basin "from any reservoir, afterbay, or other facility of an export project." *Id.* The act provides that such water "may be returned to the water supply of the export project." *Id.* Subsection (b) simply authorizes the relevant counties to adopt groundwater management plans to implement the terms of subsection (a). *Id.* § 1220(b). Subsection (c) states that the county board of supervisors may not exercise the powers granted by § 1220 within the boundaries of another local water supply agency without that agency's consent. *Id.* § 1220(c).

187. Telephone interview with Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Aug. 8, 1992).

188. *Id.*; Telephone interview with Walter Pettit, Executive Director of the State Water Resources Control Board (Aug. 14, 1992).

alternatively classifying the same water as groundwater or surface water depending on which characterization would facilitate the transfer of water without involving the burdensome requirements of change in water right hearings and area-of-origin protections.

The Board did not assert jurisdiction over the groundwater replacement transfers because it simply did not see the legal question presented by DWR's characterization of the transfers.¹⁸⁹ According to the Board's Assistant Chief Counsel, "DWR believed that we had no quarrel, but in fact we never bought off on the theory."¹⁹⁰ Indeed, as with the CVP base supply transfers, this omission may have been the result of the absence of attorney participation in the Board's informal review of the groundwater replacement contracts.¹⁹¹

The groundwater replacement transfers are troublesome for two reasons. First, it is disturbing that the Board—the principal state agency charged with the management and protection of California's water resources—would fail to consider the implications of Water Code section 1220 for transfers that the parties themselves have characterized as involving "groundwater." Indeed, this omission is particularly surprising given the Board's view that section 1220 categorically prohibits the export of groundwater from a protected area until the county-of-origin enacts a groundwater management plan under the authority granted by that statute.¹⁹²

Second, it is equally disturbing that the Department of Water Resources—which also has broad responsibility to manage and to protect the state's water resources¹⁹³—would alternatively and inconsistently define the groundwater replacement transfers for the explicit purpose of avoiding two important laws, one or the other of which was expressly applicable to such transfers. Section 1220 and the various provisions of the Water Code that govern the Board's jurisdiction over water transfers are not simply sterile formalities that can be cavalierly set aside. Rather, these laws provide the only direct protection for an array of third-party interests—including other water right holders, fish and wildlife, other instream uses, and groundwater users—that might be injured by water transfers. In defining the groundwater replacement transfers so as to circumvent these laws, DWR not

189. Telephone interview with Andrew H. Sawyer, Assistant Chief Counsel, State Water Resources Control Board (Sept. 14, 1993).

190. *Id.*

191. The Board subsequently focused on the question presented by Sec. 1220 in its informal review of the water purchase contracts between DWR and the Yuba County Water Agency. Telephone interview with Andrew H. Sawyer, Assistant Chief Counsel, State Water Resources Control Board (Sept. 14, 1993).

192. Telephone interview with Andrew H. Sawyer, Assistant Chief Counsel, State Water Resources Control Board (Mar. 1, 1993).

193. See CAL. WATER CODE § 275 (West Supp. 1994).

only created the risk that the transfers could proceed without an evaluation of the hydrological, environmental, and economic consequences. The Department also dealt with the transfers in a manner that threatened to undermine public confidence in the efficacy of the laws that are designed to guarantee the consideration of third-party interests before water is transferred from one region to another.

Before turning to the analysis of how these interests in fact were represented during the administration of the Water Bank, two countervailing factors must be noted. First, if DWR had consistently characterized the groundwater replacement transfers as involving "groundwater," it is not at all clear that section 1220 would have barred the transfers. Yolo County had not enacted a groundwater management plan, and section 1220 would preclude the transfer of groundwater out of the county only if the statute were construed to apply even in the absence of a groundwater management plan. While this would be a plausible reading of section 1220, it is not the most persuasive interpretation. The purpose of section 1220 was to grant counties the power to regulate the extraction and export of groundwater. There is no indication that the Legislature intended to bar all groundwater exports until the counties choose to regulate. Indeed, interpreting section 1220 as precluding all groundwater transfers pending the enactment of a groundwater management plan would permit the counties to frustrate through inaction implementation of the other state transfer laws, which uniformly encourage transfers as a means of supplying water deficient areas of the state. Accordingly, if DWR had acknowledged the potential applicability of section 1220, it could have found the statute to be ambiguous and therefore reached the legally defensible conclusion that the law is inapplicable until the counties exercise the regulatory powers granted to them by the legislation.¹⁹⁴

194. As noted in the text, the Board disputes this construction of section 1220. According to its Assistant Chief Counsel, the Board interprets section 1220 as prohibiting all exports of groundwater from protected areas until a county groundwater management plan is adopted. Telephone interview with Andrew H. Sawyer, Assistant Chief Counsel, State Water Resources Control Board (Mar. 1, 1993).

In any event, the questions whether groundwater replacement transfers must be treated as transfers of groundwater for purposes of section 1220 and, if so, whether section 1220 prohibits export transfers in the absence of a county groundwater management plan have been put to rest by Assembly Bill 2897, enacted in 1992. A.B. 2897, 1992 Cal. Stat. Ch. 481, section 1. This statute provides:

A water user that transfers surface water pursuant to [section 1745.04] may not replace that water with groundwater unless the groundwater use is either of the following:

- (a) Consistent with a groundwater management plan adopted pursuant to state law for the affected area.

Second, notwithstanding the decision to characterize the nature of the water transferred for the purpose of avoiding both the Board's jurisdiction over surface water transfers and the arguable statutory bar on groundwater exports, the administrators of the Water Bank were uniformly praised for their willingness to listen to claims that particular transfers to the Bank might adversely affect third-party interests.¹⁹⁵ Moreover, the Department of Water Resources took some actions that were not required by the governing law to consider the effects of certain transfers on both groundwater and the environment and to compensate (at least partially) for potential harm to local economies.¹⁹⁶

F. Consideration and Protection of Third-Party Interests

The removal of all transfers from Yolo and Solano Counties from the supervisory jurisdiction of the State Water Resources Control Board nevertheless eliminated all formal legal means of assessing third-party effects. As one observer commented, because the Department of Water Resources never established a "process to invite public participation and comment," the transfers remained essentially "private contracts between the transferors and the Water Bank."¹⁹⁷ It is in this light then that the question of how the administrators of the Water Bank considered, and took steps to mitigate harm to, third-party interests must be analyzed.

Interestingly, there is no evidence that non-participating surface water rights holders objected to any transfer associated with the Water Bank or criticized DWR for failing to protect their rights. Rather, the interviews conducted for this study

(b) Approved by the water supplier from whose service area the water is to be transferred and that water supplier, if a groundwater management plan has not been adopted, determines the transfer will not create, or contribute to, conditions of long-term overdraft in the affected groundwater basin.

CAL. WATER CODE § 1745.10 (West Supp. 1994). The new law does not apply to transfers of "previously recharged groundwater from an overdrafted groundwater basin" or to the "replacement of transferred surface water with groundwater previously recharged into an overdrafted groundwater basin, if the recharge was part of a groundwater banking operation." *Id.* § 1745.11. Notwithstanding the limitations on groundwater replacement transfers, DWR supported this legislation. Letter from Steve Macaulay, Manager of the Drought Water Bank, California Department of Water Resources (Jan. 6, 1993).

195. Telephone interview with Dick Daniel, Water Management Coordinator of the California Department of Fish and Game (Aug. 17, 1992); Telephone interview with Betsy Marchand, Chair of the Yolo County Board of Supervisors (Aug. 14, 1992); Telephone interview with Judith Redmond, California Action Network (Aug 12, 1992).

196. See *infra* part II.F.

197. Telephone interview with Judith Redmond, California Action Network (Aug 12, 1992).

identified three areas of strong concern about third-party effects. These were: (1) the effects of the groundwater replacement transfers on local groundwater resources; (2) the consequences of the land following contracts on fish and wildlife; and (3) the unaccounted costs of Water Bank operations on the economies of the areas from which the water was transferred.

1. Groundwater Overdraft and Land Subsidence

The strongest criticism of the Water Bank is the claim raised by the Yolo County Board of Supervisors and the Yolo County Flood Control and Water Conservation District that the Department of Water Resources did not adequately evaluate the effects of the groundwater substitution transfers on the groundwater resources of Yolo County. These officials are concerned that the increased pumping of groundwater required to replace the transfer of surface water from the Yolo Bypass area of the county caused both overdraft of the aquifer and subsidence in adjacent areas. Before considering this claim, it is necessary to digress briefly to consider the hydrology of Yolo County.

Irrigated agriculture dominates water use in Yolo County, accounting for ninety-six percent of the applied water use. Municipal and industrial users—located principally in the cities of Davis, Woodland, and Winters—take the balance.¹⁹⁸ Although many users have access to both surface water and groundwater, large parts of the county rely exclusively on groundwater.¹⁹⁹ These areas include the Yolo-Zamora Water District, and the cities of Davis and Woodland.²⁰⁰

During normal water supply conditions, water users in Yolo County receive approximately fifty-five percent of their supplies from surface water sources—Cache Creek, Putah Creek, and the Sacramento River—and about forty-five percent from groundwater.²⁰¹ "In drought years, agricultural groundwater use increases as more groundwater is pumped by farmers to make up for shortfalls in rain and surface water supplies."²⁰² Because

198. MIMI JENKINS, YOLO COUNTY, CALIFORNIA'S WATER SUPPLY SYSTEM: CONJUNCTIVE USE WITHOUT MANAGEMENT 12-13 (1992) [hereinafter JENKINS REPORT].

199. There are two hydrologically distinct aquifers in Yolo County: a shallow to intermediate depth aquifer, which is located within 700 feet of the surface of the overlying land, and a deep aquifer, the level of which is greater than 1,000 feet in depth. *Id.* at 17. Although the deep aquifer is used by the University of California at Davis, it is not considered to be a significant or reliable source of supply for the county. *Id.* The shallow to intermediate depth aquifer is located in the eastern and south-central parts of the county. Western and north-central Yolo County have to groundwater reserves. *Id.* at 6, 17.

200. YOLO COUNTY, WATER PLAN UPDATE 19 (1992) (draft) [hereinafter DRAFT WATER PLAN UPDATE].

201. *Id.* at 13.

202. JENKINS REPORT, *supra* note 198, at 21.

recharge from rainfall and other surface water sources also is reduced during drought conditions, this increased pumping will cause the groundwater table to drop. It has been estimated that net groundwater depletion during 1991 was approximately 140,000 acre-feet.²⁰³ Of this amount, 47,800 acre-feet (or thirty-six percent) has been attributed to the fallowing and groundwater substitution transfers to the 1991 Water Bank.²⁰⁴ These transfers totaled 96,900 and 57,400 acre-feet, respectively.²⁰⁵

The groundwater substitution transfers were concentrated in and along the Yolo Bypass in the eastern portion of the County.²⁰⁶ The additional groundwater withdrawal required to replace the surface supplies sold to the Water bank was controversial for two reasons. First, although most of the lands involved in the groundwater replacement transfers are outside the Yolo County Flood Control and Water Conservation District, the groundwater generally moves within the basin from west to east toward the area in which most of the additional pumping occurred.²⁰⁷ As a consequence, the District believed that the increased groundwater extraction associated with the Water Bank would diminish the groundwater supplies available to its members.²⁰⁸ Second, the adjacent area west of the lands that were involved in the groundwater replacement transfers has experienced groundwater overdraft over the past forty years,²⁰⁹ as well as land subsidence of between four and six

203. U.C. CONFERENCE REPORT, *supra* note 126, at 19. Another study estimates that, under surface water supply conditions comparable to 1991 but without the benefit of the March rains, a total of 760,100 acre-feet of groundwater would have to be pumped to maintain 1991 irrigation levels. This would represent a seventy-four percent increase over the average annual groundwater extractions of 436,100 acre-feet. JENKINS REPORT, *supra* note 198, at 23.

204. U.C. CONFERENCE REPORT, *supra* note 126, at 19.

205. *Id.* at 18.

206. CALIFORNIA DEPARTMENT OF WATER RESOURCES, STATE DROUGHT WATER BANK: PROGRAM ENVIRONMENTAL IMPACT REPORT 21 (1993) [hereinafter "WATER BANK EIR"].

207. JENKINS REPORT, *supra* note 198, at 29.

208. Telephone interview with James F. Eagan, General Manager of the Yolo County Flood Control and Water Conservation District (Aug. 14, 1992). DWR also has concluded that pumping in the Yolo Bypass area has formed a cone of depression, which both increases the west-to-east movement of groundwater down gradient and causes groundwater to flow west from the Sacramento River into the area of the increased extraction. A 1992 test indicated that approximately 30 percent of the water pumped from these wells may be from seepage from the Sacramento River. WATER BANK EIR, *supra* note 206, at 122.

209. JENKINS REPORT, *supra* note 198, at 33-34. The overdraft in this area has occurred over the 40-year period, in any given year, of course, the groundwater table may rise and fall, depending on variations in the level of pumping and recharge from both surface and subsurface sources. See DRAFT WATER PLAN UPDATE, *supra* note 200, at 22-27.

feet.²¹⁰ Both the Yolo county Board of Supervisors and the Yolo County Flood Control and Water Conservation District believed that the groundwater substitution transfers would exacerbate the overdraft of the aquifer and pose a significant risk of contributing to further land subsidence.²¹¹

Four actions were taken to address these concerns. First, DWR required each participant in the groundwater replacement transfers to install "totalizing flowmeters" on the discharge of each of the seller's wells.²¹² Second, the Yolo County Board of Supervisors entered into a memorandum of understanding with the Conaway Conservancy—one of the largest groundwater replacement transferors—which required it to establish "a program to monitor the behavior of groundwater in the vicinity" of its wells.²¹³ DWR included similar requirements in its contracts with the other groundwater replacement transferors and agreed to reimburse the sellers for 50 percent of their monitoring expenses up to a fixed limit.²¹⁴ Third, under threat of litigation, the Board of Supervisors persuaded each participating seller to limit the amount of groundwater that could be pumped as a substitute for transferred surface water to the seller's maximum annual use during

210. *Id.*; WATER BANK EIR, *supra* note 206, at 115. There is some evidence that the subsidence also has been caused by natural gas extraction in the area. DRAFT WATER PLAN UPDATE, *supra* note 200, at 30.

211. Telephone interview with Betsy Marchand, Chair of the Yolo County Board of Supervisors (Aug. 14, 1992); Telephone interview with James F. Eagan, General Manager of the Yolo County Flood Control and Water Conservation District (Aug. 14, 1992); U.C. CONFERENCE REPORT, *supra* note 126, at 21 (comments of James F. Eagan). DWR partially disputes this contention. According to the Department, while

[i]t is true that there is possible subsidence in this area...actual subsidence has only been confirmed in the Yolo-Zamora area some distance to the north and west. There does not appear to be long-term overdraft in the Woodlands-Davis area, although there are substantial water level depressions due to continual pumping for urban use. The concern is not overdraft; rather, it is the threat of future subsidence due to water levels falling below their historical levels.

Letter from Robert G. Potter, Chief Deputy Director of the California Department of Water Resources 2 (Sept. 8, 1993) (on file with author).

212. *See e.g.*, Contract Between the California Department of Water Resources and the Conaway Conservancy Group for 1991 Emergency Drought Water Supply, Exhibit C (Apr. 9, 1991) [hereinafter Conaway Contract] (on file with author).

213. *See e.g.*, Yolo County Board of Supervisors, Agreement No. 91-33. Memorandum of Understanding, in Conaway Contract, *supra* note 212, Exhibit D, at 3.

214. *Id.* at 9; Letter from Robert G. Potter, Chief Deputy Director of the California Department of Water Resources 2 (Sept. 8, 1993) (on file with author).

the ten preceding years as measured by existing well records.²¹⁵ Fourth, the Board of Supervisors imposed a two percent gross receipts charge on the revenue received by the seller from the water transferred to the Water Bank.²¹⁶ DWR agreed to reimburse the seller's costs of paying this surcharge.²¹⁷

Notwithstanding the great concern about the groundwater replacement transfers, there is no evidence that the additional groundwater pumping either caused land subsidence or has significantly lowered well levels in up-gradient portions of the basin. University of California researchers have stated that

it is not possible at this time to establish the degree of subsidence resulting from the water bank. Field measurements are essential but the instrumentation has not been in place long enough to allow quantification. Thus, the conclusion at this time is limited to concern about subsidence—concern for protection of levees, for example, and drainage canal slopes.²¹⁸

DWR has concluded more categorically that "[n]o significant adverse impacts were detected in Yolo County during 1991 as a result of pumping for the water bank," and that subsequent monitoring has not contradicted this conclusion.²¹⁹ Indeed, even Yolo County officials agree that there is no firm evidence that the 1991 and 1992 Water Bank transfers caused any irreparable harm to the structure of the aquifer or to other County interests.²²⁰

These past transfers are not the county's primary concern, however. Rather, County officials fear that DWR has targeted the Yolo Bypass area as a principal source of supply for future water banks and for transfers to individual purchasers in the urban areas of the state.²²¹ They believe that all of the water presently

215. Yolo County Board of Supervisors, Agreement No. 91-33. Memorandum of Understanding, in Conaway Contract, *supra* note 212, Exhibit D, at 3.

216. *Id.* The county pledged to use this revenue "solely to fund activities in implementing the County's Water Plan and to integrate local water resources of [the seller] and others for the long-term benefits of [the seller]...the local community, and the County." *Id.*

217. *See e.g.*, Conaway Contract, *supra* note 212, at 9.

218. U.C. CONFERENCE REPORT, *supra* note 126, at 20-21.

219. WATER BANK EIR, *supra* note 206, at 122.

220. Telephone interview with Betsy Marchand, Chair of the Yolo County Board of Supervisors (Aug. 14, 1992); 220. Telephone interview with James F. Eagan, General Manager of the Yolo County Flood Control and Water Conservation District (Aug. 14, 1992).

221. Telephone interview with Betsy Marchand, Chair of the Yolo County Board of Supervisors (Aug. 14, 1992); Telephone interview with James F. Eagan, General Manager of the Yolo County Flood Control and Water Conservation District (Aug. 14, 1992).

available to Yolo County will be needed within the County to supply future demands and are concerned that DWR does not understand the effects of the surface water and groundwater exports on the groundwater hydrology.²²² As described by the Chairwoman of the Board of Supervisors, the measures adopted by the County and DWR in 1991 were at best temporary protections that did not "speak at all to the subsidence issue . . . The problem was that DWR had no long-range plan to address third-party impacts."²²³

In view of these concerns, it is surprising that the Yolo County Board of Supervisors did not attempt to exercise the authority granted to it by section 1220 of the Water Code to enact a groundwater management plan.²²⁴ Such a plan might limit the pumping of groundwater to the sustainable yield of the aquifer or prohibit the use of groundwater substitution contracts unless the extractor could prove that the increased pumping would not overdraft the aquifer or cause subsidence. The General Manager of the Yolo County Flood Control and Water Conservancy District explained that it had been impossible even to obtain a consensus on the draft Yolo County Water Plan Update—a document that is without binding legal consequence—and that placing restrictions on the use of a presently unregulated resource would be even more difficult.²²⁵ Indeed, according to the Chairwoman of the Board of Supervisors, many farmers in Yolo County seem to fear the creation of a local groundwater management agency even more than they worry about the effects of future groundwater exports.²²⁶

In any event, the Department of Water Resources' decision to characterize all of the groundwater transfers as "surface water transfers," and therefore to exempt them from section 1220, pretermitted this strategy. Yet, given the State Water Resources Control Board's interpretation of section 1220 as applying of its own force, even in the absence of a county groundwater management plan,²²⁷ it is odd that Yolo County did not challenge DWR's characterization and try to use the statute to bar the groundwater replacement transfers.

For the future, Yolo County may take some comfort in DWR's preparation of an environmental impact report on the Water Bank. Yet, the report is short on

222. Telephone interview with Betsy Marchand, Chair of the Yolo County Board of Supervisors (Aug. 14, 1992); Telephone interview with James F. Eagan, General Manager of the Yolo County Flood Control and Water Conservation District (Aug. 14, 1992).

223. Telephone interview with Betsy Marchand, Chair of the Yolo County Board of Supervisors (Aug. 14, 1992).

224. See *supra* text accompanying note 186.

225. Telephone interview with James F. Eagan, General Manager of the Yolo County Flood Control and Water Conservation District (Aug. 14, 1992).

226. Telephone interview with Betsy Marchand, Chair of the Yolo County Board of Supervisors (Aug. 14, 1992).

227. See *supra* note 194.

specific protections for Yolo County and other areas concerned about groundwater exports. It describes the "intense level of monitoring" conducted in the Yolo Bypass area during the 1991 and 1992 Water Banks and states that "the results of this monitoring program will provide the basis for evaluating the effects of future pumping in the area."²²⁸ The report notes, however, that the Yolo county monitoring "is considered close to maximum in terms of potential concerns to be addressed and the significance of potential impacts" and concludes that "no significant adverse effects were detected in Yolo County" from either the 1991 or the 1992 Water Bank.²²⁹

Nor is Yolo County likely to find much solace in AB 2897, which the Legislature enacted in 1992 in response to the problems presented by the groundwater replacement transfers.²³⁰ The Water Code now prohibits groundwater replacement transfers unless the groundwater use associated with the transfer is consistent with an adopted county groundwater management plan or, in the absence of such a plan, is "[a]pproved by the water supplier from whose service area the water is to be transferred" based on the supplier's determination that the transfer "will not create, or contribute to, conditions of long-term overdraft in the affected groundwater basin."²³¹ Until Yolo County adopts a groundwater management plan, this statute clearly grants local water suppliers such as the Yolo County Flood Control and Water Conservation District authority to block the transfer of groundwater or surface water for which groundwater is substituted. The problem for the County, however, is that virtually all of the groundwater replacement transfers to the 1991 Water Bank, as well as most of the potential future groundwater replacement transfers that County officials fear, were made by water users that do not receive water from a local water supplier. Rather, the transfers from the Yolo Bypass area were made predominantly by CVP contractors whose land is outside the boundaries of the local water agencies. Consequently, unless or until Yolo county enacts a groundwater management plan, the County and the various local agencies that supply water within the county will have to look to the Bureau of Reclamation to represent their interests under the new legislation.²³²

228. WATER BANK EIR, *supra* note 206, at 121-22.

229. *Id.* at 122.

230. *See supra* note 194.

231. CAL. WATER CODE §1745.10 (West Supp. 1994).

232. The CVP Improvement Act of 1992 does require the Bureau to protect groundwater resources in areas from which it authorizes the transfer of project water. Section 3405(a)(a)(j) of the Act stipulates that the Bureau may not approve a transfer that would create "significant long-term adverse impact[s] on groundwater conditions in the transferor's service area." The CVP Improvement Act of 1992, Pub. L. No. 102-575, § 3405(a)(1)(j), 106 STAT. 4706 (1992). For an analysis of the water transfer provisions of the CVP Improvement Act, *see Gray, The Modern Era in California Water Law, supra* note 1 at 273-78.

2. Fish and Wildlife Protection

A number of concerns also were raised about the effects of Water Bank operations on fish and wildlife. The transfers associated with the Water Bank had three principle environmental effect in the areas from which water was transferred.

First, the alteration in releases from upstream reservoirs, the movement of additional water across the Delta, and the attendant increase in pumping from the CVP and SWP facilities in the south Delta posed a variety of threats to several species of fish in the Sacramento River basin and in the Delta. These included increases in water temperature and salinity above the levels required for spawning and survival of eggs and larvae, alteration of flows needed for out-migration of juvenile anadromous fish, and entrainment of fish at the Tracy and Banks pumping plants. The species of greatest concern were Chinook salmon, striped bass, American shad, and the Delta smelt.²³³

Second, the fallowing of land in the lower Sacramento River and in the Delta reduced feed grain and nesting habitat for wildlife and waterfowl. As DWR has noted,

Fallowing of cereal grain crops (corn, rice, wheat, and barley) had a high potential for wildlife impacts. Waste grain in harvested fields provides a substantial portion of seasonal food requirements for both migrating and resident wildlife Removal of vegetative cover severely restricts the density and diversity of wildlife species present.²³⁴

In addition, fallowing may reduce the food supply in the immediate region available for migratory waterfowl. "Consequences range from reduced bird weight before migration back to nesting areas, to increased pressure on surrounding farmlands with either higher bird populations, increased crop losses, or both."²³⁵

Third, the transfers associated with the Water Bank—and the consequent changes in impoundments, diversions, and cropping patterns—had some beneficial effects on fish and wildlife. DWR as observed, for example, that the

[c]apture of juvenile fish in unscreened pumps and diversions in the Delta and Sacramento River were reduced since water diversions to farmland were reduced under fallowing contracts. Fallowing lands also provided the opportunity to retain more

233. See DAT REPORT, *supra* note 8, at 10-11; Fish Impact Memorandum, *supra* note 92.

234. WATER BANK EIR, *supra* note 206, at 142.

235. *Id.* at 9.

water in reservoirs until later in the season, helping to cool river temperatures to the benefit of salmon. The reduction of irrigated acreage also reduced salts and chemical loading during a prolonged period of low river flows.²³⁶

The Department of Fish and Game [hereinafter "DFG"] agrees with this assessment.²³⁷

DFG was not involved in the negotiation of either the contracts to purchase water for the Water Bank or the contracts to sell water acquired by the Bank. Rather, the contracts were "solicited, negotiated, and signed before anyone on the 'outside' was able to participate."²³⁸ On March 1, 1991, however, DWR advised the Board that, to "maximize water quality improvements and minimize the impact of increased exports," it would "work closely with the Department of Fish and Game and the U.S. Fish and Wildlife Service to optimize the scheduling of 'water bank' and other water transfers."²³⁹ The Board directed DWR to conduct an analysis of the effects of Water Bank transfers on the fisheries of the Sacramento River and Delta systems.²⁴⁰ Based on this study, DWR made a variety of changes in planned Water Bank operations to reduce the effects of the transfers on Chinook salmon in the Sacramento River and on striped bass, American shad, and Delta smelt populations in the Delta.²⁴¹ DFG helped to conduct this analysis

236. 1992 DWR REPORT, *supra* note 7, at 18.

237. Telephone interview with Dick Daniel, Water Management Coordinator of the California Department of Fish and Game (Aug. 17, 1992).

238. *Id.*

239. CALIFORNIA DEPARTMENT OF WATER RESOURCES, DELTA PROTECTIONS: EFFECT OF TEMPORARY MODIFICATIONS OF WATER RIGHT PERMITS 9 (1991). DWR submitted this document to the Board in conjunction with a joint petition filed by the Department and the Bureau of Reclamation temporarily to amend the permits for the SWP and the CVP (1) to increase the 28-day running average of mean daily chloride concentrations at three points in the Delta to 300 mg/L. CALIFORNIA STATE WATER RESOURCES CONTROL BOARD, NOTICE OF EMERGENCY HEARING AND BOARD MEETING: CONSIDERATION OF DROUGHT-RELATED EMERGENCY WATER RIGHT ORDER AND RELATED ACTIONS IN RESPONSE TO A REQUEST FOR A HEARING FROM THE DEPARTMENT OF WATER RESOURCES (1991). As noted above, the parties subsequently withdrew the petition. *See supra* text accompanying notes 89-90.

240. 1992 DWR REPORT, *supra* note 7, at 10; Fish Impacts Memo, *supra* note 92.

241. 1992 DWR REPORT, *supra* note 7, at 10-11. For example, DWR asked the Bureau of Reclamation to retain in Shasta Reservoir water purchased by the Bank from CVP contractors for later release when the water would help to maintain temperature levels needed for spawning winter-run Chinook salmon. The Department deferred pumping from the south Delta that had been scheduled for May and June "to minimize the impacts on striped bass eggs and larvae." *Id.* at 10. It also limited Delta exports during July and August to reduce entrainment of American shad, striped bass, and Delta smelt. Previously scheduled spring and summer

and concurred in the administrative changes implemented by DWR. Indeed, the Water Management Coordinator for DFG has stated that the administrators of the Water Bank "made a sincere effort to work with Fish and Game and to mitigate environmental impacts."²⁴²

Post hoc participation in the mitigation of harm to fisheries is not an adequate substitute, however, for involvement in the decision *ab initio* to enter into particular transfer contracts. The adverse environmental effects from some transfers may be impossible to mitigate fully. More importantly, the cumulative effects from the aggregation of all of the transfers that comprise the Water Bank will inevitably limit the mitigation measures that DFG may recommend or that DWR may impose. Mitigation measures—such as reservoir reoperation and delayed Delta pumping—that would render it impossible to fulfill the purchase contracts, for example, could not be undertaken without breaching those contracts.²⁴³ In response to these types of concerns, the Water Management Coordinator for the DFG sat on the "Water Purchase Committee" of the 1992 Water Bank.²⁴⁴ This gave DFG the opportunity to critique the transfer proposals before the contracts were signed and to recommend mitigation measures that could be written into the purchase and sales contracts.

Even with this opportunity for early participation, however, two problems remain. First, other interested parties—such as private fishing organizations, local governmental officials, and environmental organizations—do not have a formal opportunity to comment on the transfer proposals until they become *faits accomplis*. In contrast, if the transfers were subject to the jurisdiction of the Board, the agency would make an independent evaluation of the potential harms caused by the changes in storage, diversion, and use and would be required to conduct a public hearing on the proposals if it were unable unilaterally to determine that the

deliveries to Water Bank customers in the San Joaquin Valley and Southern California were made from water stored in the San Luis Reservoir. DWR then replaced the water in San Luis Reservoir "in September and October when it could be moved through the Delta with minimum effects on fisheries. In addition, a portion of the water was held in reservoirs north of the Delta as carryover storage, reducing exports during 1991." *Id.* at 11.

242. Telephone interview with Dick Daniel, Water Management Coordinator of the California Department of Fish and Game (Aug. 17, 1992).

243. This would not be true, however, if the decision to alter the purchase contracts was made on the basis of an existing legal directive to protect the environment or an endangered species. In such a case, the existing law, be it the Endangered Species Act, the public trust doctrine, or the Delta water quality standards established under the Porter-Cologne and Clean Water Acts, would take precedence over the contracts. *See* *United States v. State Water Resources Control Board*, 182 Cal. App. 3d 82, 145-48 (1st Dist. 1986).

244. Interview with Dick Daniel, Water Management Coordinator of the California Department of Fish and Game (Aug. 17, 1992).

transfers would not unreasonably affect fish, wildlife, and other instream beneficial uses.²⁴⁵ Second, although DWR and DFG addressed the question of fisheries protection, no agency developed a firm understanding of the effects of the Water Bank transfers on migratory waterfowl. DFG's Water Management Coordinator reported that the fallowing of land in the Delta and lower Sacramento River to generate water for sale to the Water Bank "had undetermined effects on waterfowl from lost grain and lost habitat."²⁴⁶ DFG also found evidence of nesting failures from lack of brood water and cover and observed a shift in geese migration, with many birds moving north earlier in the year than normal.²⁴⁷ Despite these observations, there was no systematic evaluation of the effects of land fallowing and other cropping changes on wildlife and waterfowl.²⁴⁸

The solution to these problems is not to subject all future Water Bank transfers to review by the State Water Resources Control Board. During times of severe drought and localized water shortage emergencies, state officials and participating buyers and sellers must act swiftly to sign contracts and to move the water through the Bank. In this context, even the expedited procedures of the Temporary Change provisions of the Water Code²⁴⁹ could delay the necessary environmental review and Board approval until it is too late to supply water for pre-irrigation, planting, or supply of withering row crops and orchards. Rather, what is needed is pre-emergency evaluation of environmental and other third-party effects of potential transfers. The outline of this *a priori* review is the subject of Part III of this article.

3. Reimbursement of Social Welfare Costs

The third criticism of the Water Bank arose out of the land fallowing contracts. On January 7, 1992, the Yolo County Board of Supervisors submitted a \$129,305.00 bill to the Department of Water Resources for reimbursement of the County's additional expenditures for General Assistance and Aid to Families With Dependent Children allegedly caused by the increase in unemployment attributable to land fallowing and the transfer of water to the 1991 Water Bank. The Board of Supervisors estimated that the fallowing of 40,200 acres in Yolo County decreased the

245. CAL. WATER CODE § 1727 (West Supp. 1994); *see supra* note 140.

246. Telephone interview with Dick Daniel, Water Management Coordinator of the California Department of Fish and Game (Aug. 17, 1992).

247. *Id.*

248. In part as a response to these problems associated with land fallowing, however, DWR did not enter into any fallowing contracts for the 1992 Water Bank. Letter from Robert. G. Potter, Chief Deputy Director of the California Department of Water Resources 4 (Sept. 8, 1993) (on file with author).

249. *See supra* notes 139-40 and accompanying text.

demand for agricultural labor, services, and supplies within the County and consequently put 450 persons out of work. The unemployed workers then made claims for general assistance and AFDC entitlements, which in turn increased the County's social services costs by \$129,305.00.²⁵⁰

DWR responded with a detailed letter that challenged both the legality of the County's claim and the facts on which the claim was premised. It agreed "that 'third-party impacts' need to be addressed and that local economic impacts resulting from substantial unanticipated land fallowing can be significant," but stated that Governor Wilson's "forthcoming water program" would be the appropriate forum in which to address these issues."²⁵¹ DWR then declared that it was unaware of "any legal basis for the Department to reimburse a county for such costs in the absence of a contractual provision or statute authorizing it to do so."²⁵² Finally, it contested the County's assessment of the additional, unreimbursed social welfare costs that were attributable to the fallowing contracts.

First, DWR observed that "much of the 'fallowed' acreage in Yolo County was wheat, pasture, and alfalfa, where the farmers agreed not to irrigate the crops that were already in the ground. We have been told by farmers that in many cases full or substantial crops were still harvested on these lands Since wheat farmers were presumably able to use full (or nearly full) labor inputs, such arrangements may have resulted in a net increase to the County revenues and little impact to County services."²⁵³ Second, DWR asked, "What happened to farm laborers who would have farmed lands that were fallowed?" Challenging the County's implication that all such workers applied for general assistance, the Department stated that at least some of these workers "remained employed and were put to work on deferred maintenance projects and other tasks."²⁵⁴ Third, DWR suggested that the farmers who fallowed their lands might well have spent some of the income received from the Water Bank in Yolo County and argued that the County would receive additional tax receipts from the farmers' increased revenues.²⁵⁵ Fourth, the Department noted that "[m]ore than \$600,000 was spent locally in developing the extensive groundwater monitoring program in the Yolo Bypass. In addition, we have provided more than \$100,000

250. Letter from George P. DeMars, Chair of the Yolo County Board of Supervisors, to David N. Kennedy, Director of the California Department of Water Resources 1 (Jan. 7, 1992) (on file with author).

251. Letter from Robert. G. Potter, Chief Deputy Director of the California Department of Water Resources, to Betsy A. Marchand, Chair of the Yolo County Board of Supervisors 1 (mar. 10, 1992) (on file with author).

252. *Id.*

253. *Id.* at 2.

254. *Id.*

255. *Id.* at 2-3.

directly to Yolo County to continue work on local water resource planning efforts. Presumably, this money was all spent in the local area.²⁵⁶

DWR advised the Board of Supervisors that to proceed with the request for reimbursement it would have to make a claim to the State Board of Control.²⁵⁷ Yolo County subsequently filed a reimbursement claim, which the Board of Control denied in 1993.²⁵⁸ According to the Chairwoman of the Board of Supervisors, "going to the State Board of Control is like going to a bottomless pit; also, this was a new type of claim. It would have cost us more than \$129,000 to develop the information they wanted in order to submit a new claim. This isn't fair, folks."²⁵⁹

Fairness aside for the moment, DWR's rejection of the claim was clearly the appropriate response. As the Department itself emphasized, there is no legal basis (apart from a contract) for a county or any other local agency to seek reimbursement for lost revenues or increased expenses caused by water transfers out of the area. Water Code section 386 stipulates that transfers of water made available by conservation or land fallowing may not "unreasonably affect the overall economy of the area from which the water is being transferred."²⁶⁰ But this statute is applicable only to transfers of "surplus" water that are subject to the State Water Resources Control Board's jurisdiction under Water Code sections 380-387. As discussed previously, the Board did not have jurisdiction over any of the transfers from Yolo County.²⁶¹ Moreover, even if section 386 were applicable, neither it nor any other provision of California law authorizes DWR to reimburse counties for the economic consequences of water transfers that "unreasonably affect" the local economy.

As with most of the other issues analyzed in this paper, however, the legal resolution of the dispute for purposes of the 1991 Water Bank does not put the controversy to rest. Yolo County fears that the 1991 Water Bank was a portent of future efforts by DWR to use the Sacramento River basin generally, and Yolo County in particular, as a permanent source of

256. *Id.* at 3; *see supra* text accompanying notes 216-17.

257. Letter from Robert. G. Potter, Chief Deputy Director of the California Department of Water Resources, to Betsy A. Marchand, Chair of the Yolo County Board of Supervisors 1 (Mar. 10, 1992) (on file with author).

258. Telephone interview with Charles Mack, Yolo County Counsel (Sept. 13, 1993).

259. U.C. CONFERENCE REPORT, *supra* note 126, at 39. (comments of Betsy A. Marchand). Notwithstanding these concerns, Yolo County submitted its claim to the Board of Control in December of 1992. Letter from Robert. G. Potter, Chief Deputy Director of the California Department of Water Resources 4 (Sept. 8, 1993) (on file with author).

260. CAL. WATER CODE § 386 (West Supp. 1994).

261. *See supra* part II.B.

additional water supply for the growing urban areas of the state.²⁶² DWR acknowledged at the time that further study is needed "so that we can develop a future program that can best minimize any adverse impacts."²⁶³ Since then, it has taken two steps to reduce the economic disruption and social costs of transfers associated with the Water Bank. In 1992, the Bank purchased no water made available by land fallowing.²⁶⁴ And, in the EIR that the Department has prepared to evaluate the drought water bank program, it has proposed to acquire water through fallowing contracts *generally*, as a last priority after purchasing surplus water and surface water made available by groundwater substitution.²⁶⁵

The questions raised by Yolo County's reimbursement request are the fundamental ones that must be grappled with, if not resolved, before future water banks may be created: To what extent should our laws accord local communities collective rights to their existing water supplies, and how should those communal rights be balanced against the claims of the market? The existence of these questions, and the deeply felt and widely shared view among California's rural communities that water is an endowment, is one of the enduring lessons of the 1991 Water Bank.

III. Five Lessons for Future Water Banks

Despite the jurisdictional criticisms and the concerns over third-party interests, the first lesson of the state's experience with water banking is that transfers can play a crucial role in providing supplemental supplies to water-short regions in times of drought. Moreover, at least with the extraordinary efforts of state, federal, and local water administrators, this reallocation can occur quickly and with some consideration of the effects of Water Bank operations on the environment and on the local areas from which water is exported.

The events of the 1991 Water Bank also demonstrate, however, that the good faith of individual administrators is not an adequate substitute for formal and systematic protections of third-party interests. As described above, transactions were manipulated to avoid review by the State Water Resources Control Board and some transfers were authorized without an understanding of their effects on the region's groundwater resources, on instream flows, and on fish and wildlife habitat. The second lesson of the

262. U.C CONFERENCE REPORT, *supra* note 126, at 39. (comments of Betsy A. Marchand); Telephone interview with Betsy A. Marchand, Chair of the Yolo County Board of Supervisors (Aug. 14, 1993).

263. Letter from Robert. G. Potter, Chief Deputy Director of the California Department of Water Resources, to Betsy A. Marchand, Chair of the Yolo County Board of Supervisors I (Mar. 10, 1992) (on file with author).

264. WATER BANK EIR, *supra* note 206, at 11.

265. *Id.* at 4-5; *see infra* text accompanying note 278.

1991 Water Bank therefore is the state must establish a comprehensive and consistent process for the consideration of third-party interests that are potentially affected by water transfers, or by their attendant changes in reservoir operations, groundwater and surface water management, and cropping patterns.

A first step would be to acknowledge the haphazard nature of the Board's jurisdiction over water transfers. Important matters such as the provision to comment on transfer proposals before they are approved, and the application of formal statutory criteria for the consideration of third-party interests should not be contingent on the legal characterization of the water being transferred. The current state of law—under which some transfers must be evaluated by the Board, while others are exempt from formal review—can be explained only by reference to history and tradition. Changes in riparian and pre-1914 appropriative rights, transfers of groundwater, and reallocations of CVP base supplies are exempt from the water transfer statutes simply because the underlying water rights were accorded "grandfathered" immunity from the modern system of water rights regulation.²⁶⁶ Yet, the fallowing of riparian land and the release of the conserved water, or the transfer of CVP base supplies premised on pre-1914 rights and the substitution of groundwater, can have the same effects on fish and wildlife or groundwater resources in the area from which the water is exported as a transfer that requires change in the transferor's permit or license.

While greater coherence in water rights administration is a generally desirable policy goal, the extension of the Board's jurisdiction to cover all types of water transfers would not be an appropriate response to this particular problem. For, as emphasized throughout this paper, emergency drought transfers must be negotiated and implemented quickly—usually in less than two months. If the Board had to evaluate all transfer proposals before they could become effective, the administrative proceedings could delay the transfers well beyond the time in which the water is needed in the purchasing areas. This is likely to be true even if the Board could make the findings required by Water code section 1727 on its own, without conducting noticed, public hearings on the transfer petitions.²⁶⁷ For example, there were

266. When the Legislature enacted the Water Commission Act of 1913, which established the predecessor to the State Water Resources Control Board, it exempted riparian rights and appropriations that were commenced prior to the effective date of the statute, December 19, 1914, from the permit and license system. CAL. WATER CODE § 1201 (West 1971). The Legislature also limited the coverage of the Act to appropriations of water from bodies of surface water and from "subterranean streams flowing through known and definite channels." *Id.* section 1200. This had the effect of generally exempting groundwater use from the permit and license system. See Gray, *supra* note 115, at 747-48.

267. See *supra* text accompanying notes 139-40 and accompanying text.

351 contracts for the sale of water to the 1991 Water Bank.²⁶⁸ Board review of these contracts to determine that each transfer individually (and all transfers cumulatively) would not injure any other legal water user under any potential hydrological condition or unreasonably affect fish, wildlife, and other instream beneficial uses could have dragged on through the summer and fall when the water was most needed in the purchasing areas.

Nor is enhanced local control, such as that created by AB 2897, an adequate response to the problem of unregulated Water Bank transfers. Counties-of-origin, local water agencies, and other water users in the area from which groundwater or surface water is transferred have legitimate interests both in the region's water resources and in proposals to export water to other parts of the state. But local entities can be expected to evaluate the costs and benefits of water transfers from a decidedly parochial perspective.²⁶⁹ This is particularly true during periods of drought, when other members of a local water agency, or users with correlative rights to a groundwater basin, are likely to claim as their own water that another user proposes to make available for transfer by fallowing or groundwater substitution. For example, the Yolo County Flood Control and Water Conservation District strongly objected to the groundwater replacement transfers to the 1991 Water Bank because of the potential effects of such transfers on groundwater supplies in its service area, and it is the District's policy to maintain all currently available supplies for use within the county, and the District.²⁷⁰ Indeed, as the Chairwoman of the Yolo County Board of Supervisors has stated, the County "believes that water is a community resource and that we need to protect it."²⁷¹

Yet, there are other equally legitimate interests involved in the decision whether to transfer water. Water deficient areas of the state must have the ability—either through the market or the political and administrative processes—to acquire emergency supplies in times of drought. And, state and federal water officials have a responsibility that transcends local or regional interests to ensure that domestic users, essential economic sectors, and environmental needs have adequate supplies. Indeed, the very idea of a state Water Bank—which is premised on the theory that market forces, rather than government fiat, should determine the reallocation of water resources—belies the notion that counties and local water agencies should have a veto over transfers to other regions of the state.

268. HOWITT REPORT, *supra* note 54, at 10; *see supra* text accompanying note 55.

269. For an insightful and provocative analysis of the policies of local water agencies regarding transfers to users outside their service area, see Barton H. Thompson, Jr., *Institutional Perspectives on Water Policy and Markets*, 81 CALIF. L. REV. 673 (1993).

270. Telephone interview with James F. Eagan, General Manager of the Yolo County Flood Control and Water Conservation District (Aug. 14, 1992).

271. U.C. CONFERENCE REPORT, *supra* note 118, at 39 (remarks by Betsy Marchand).

The market alone will not adequately represent all of the relevant interests, however. For the parties to the transfer contracts, even with DWR involvement, can be expected to focus on their bilateral interests—water supply and demand, price, opportunity costs, and contract terms—and pay scant if any attention to the interests of the third-parties who will bear the external costs of the transactions. As Professor Sax has observed, the "future of water transfers will be jeopardized" unless a broader and more inclusive model is recognized. A more appropriate model "would be a diplomatic negotiation and legitimate interests that need to be accommodated, but without clearly defined rights."²⁷²

Thus, there must be a governmental forum in which all of the interests involved in the operations of the Water Bank can be represented and evaluated. Moreover, because of the need to respond quickly to localized water shortages during periods of drought, it is essential that the review and determination of third-party interests—and the ultimate accommodation of the interests—of *all* of the parties—be made expeditiously, as well as comprehensively.

Evaluation of individual transfers after the agreements between the water user and the Water Bank are signed would fail both criteria. As noted above, with hundreds of parties participating in the Water Bank, it would be impossible for the Board, or any other agency, to review each of the transfer contracts thoroughly to ensure that Water Bank operations will not violate the legal protections for third-party interests, but also quickly to allow water to be transferred to areas of critical shortage in time to meet seasonal demands. Moreover, sequential review of individual transfer contracts would present the risk that the cumulative effects of the transfers would not be adequately considered.

The Department of Water Resources has responded to this problem by preparing a "Program Environmental Impact Report" on future drought water banks.²⁷³ This document has many positive features. For example, it contains a detailed analysis of the hydrology of the Sacramento-San Joaquin River Delta system that will help both water management officials and the interested public to understand better how the 1991 and 1992 Water Banks affected the competing water users, river flows, water quality, fish and wildlife, groundwater, and land use.²⁷⁴ It also describes a range of possible "significant unavoidable

272. *Id.* at 6.

273. *See supra* note 206. The draft EIR defines the proposed program as "a State Drought Water Bank, a water supply augmentation program to be implemented...during periods of drought and other severe water-short periods." WATER BANK EIR, *supra* note 206, at 1. The EIR covers the next five to ten years. "Within the next 10 years, a subsequent environmental analysis will be conducted to reexamine actual conditions under which the proposed program will have operated." *Id.*

274. WATER BANK EIR, *supra* note 206, at 17-148.

impacts" and "cumulative impacts" on surface and groundwater supplies, water quality, fish and wildlife, and local economies from future water bank operations.²⁷⁵ The report concludes with a discussion of an array of alternatives to water transfers—ranging from demand reduction to construction of new facilities to desalination and weather modification—that could be used to supply critical demands during future droughts.²⁷⁶

For the most part, however, the EIR is a purely advisory document. Although DWR states that implementation of future drought water banks will "proceed within the range and scope of effects" set forth in the EIR,²⁷⁷ the report is bereft of specific limitations, or even policies, that would govern water transfers, reservoir operations, and water management decisions associated with the Water Bank. For example, the report does not define the areas from which water may be transferred as a result of land fallowing or groundwater substitution without causing significant adverse third-party effects. Nor does it specify the hydrologic conditions during which water may be moved through the Delta without posing a substantial risk to anadromous fish.

The only exceptions are statements that occur in Chapter One of the EIR under the headings "Priority of Implementation" and "Participant Guidelines" and in Chapter Six under the title "Cumulative Socioeconomic Effects." These sections propose substantive policies that define how future water banks will be administered.

First, water would be acquired from different categories of prospective sellers based on the size of the aggregate demand for water from the Water Bank. DWR expressed a general preference for purchases of surplus water and water made available by groundwater substitution. Purchase of water from land fallowing would be the lower priority. DWR noted, however, that:

fallowing can be a successful source of water without creating significant adverse impacts, and is favored by some sellers over groundwater substitution. Therefore the future strategy will be to consider transfers on a case-by-case basis, where groundwater substitution might be the favored source in one region while fallowing would be the preferred source in another.²⁷⁸

Second, prospective purchasers of water from the Bank would have to satisfy the following criteria: Municipal and industrial users would be required, "considering prudent carryover reserves for future years," to use all available alternative supplies and could purchase water only "to avoid

275. *Id.* at 149-86.

276. *Id.* at 187-204.

277. *Id.* at 12.

278. *Id.* at 4-5.

significant environmental, economic or social loss or damages that might otherwise occur if water deliveries were not made."²⁷⁹ Agricultural users also would have to use all available supplies, considering prudent carryover storage for "trees, vines, permanent crops, and other crops where the acquired water would have a high unit value."²⁸⁰ Supplies for fish and wildlife would be based on annual criteria developed by DFG and "would depend on the annual condition of fish and wildlife populations and survival conditions."²⁸¹

Third, DWR is considering a variety of other strategies to minimize or to mitigate the effects of future Water Bank transfers on the areas from which water is sold. These include:

- Reimbursement of county governments for increased social welfare costs associated with unemployment caused by land fallowing;
- Payments to county governments and local groundwater management agencies for the development of water management plans;
- Limitation on the amount of water generated by land fallowing to 20 percent of the water that would have been applied or stored in the absence of Water Bank transfers;
- Development of priorities for types of water transfers by region.²⁸²

These substantive standards are a salutary first step toward the accommodation of third-party interests and the need for prompt action in response to emergency water shortages. But the EIR fails to correct the fundamental problem identified in this paper—the absence of coherent, systematic review to ensure that transfers associated with the Water Bank, both individually and collectively, do not create (or exacerbate) groundwater overdraft, alter stream flows or degrade water quality in ways that pose an undue risk to anadromous fish, diminish food and habitat for wildlife and waterfowl, or cause unreasonable disruptions to the local communities from which water is exported.

What is needed instead is a comprehensive analysis of environmental, economic, and other potential third-party effects that can serve as a guide for future water banks. Such a document would contain legally binding determinations of the controversies that vexed the administration of the 1991 Water Bank and which, if left unresolved, would imperil the establishment and operation of future banks. Thus, the environmental and economic analysis would answer such questions as:

279. *Id.* at 5.

280. *Id.*

281. *Id.*

282. *Id.* at 185.

- From what areas could additional groundwater be pumped—either for direct transfer to the Water Bank or as replacement for surface water sold to the Water Bank—without causing irreparable harm in the form of land subsidence, non-rechargeable lowering of the water table, and groundwater pollution?
- What limits and conditions should be placed on groundwater extraction in those areas in which it is permissible in order to avoid or to minimize these problems?
- What restrictions should be placed on reservoir operations, diversions, and other matters of water rights administration, under a variety of hydrologic conditions, to ensure that the transfer and changes in water use associated with the Water Bank do not adversely affect anadromous fish, instream flows, and water quality in the Delta and in the rivers from which the water is transferred?
- How would the Water Bank affect other endangered or threatened species, again under a variety of hydrologic conditions?
- In what areas could agricultural land be fallowed to make water available for transfer to the Water Bank without jeopardizing the food supply and habitat for wildlife and waterfowl?
- How do migratory birds and other animals respond to changes in food supply and habitat—i.e., are there other areas to which they could move for replacement of the areas lost to the fallowing program?
- How much land could be fallowed in each county that participates in the Water Bank without unduly disrupting local economies and without imposing unreasonable uncompensated social service costs on local governments?
- What other employment opportunities would be available to workers displaced by changes in farming operations associated with the Water Bank?

Reliable answers to these and other relevant questions will not come easily or inexpensively. But the product of this endeavor would be well worth the time and expense involved.

Once the analyses described above were completed, the state would have a hydrologic map of those regions that are likely to participate in, or be affected by, future water banks. These areas might include Yuba County, the Sacramento River, the Yolo Bypass, the Delta, and the west side of the San Joaquin Valley. Transfers from these areas that are consistent with the findings of the study would be exempt from review by the State Water Resources Control Board. Transfers that would violate the limitations and conditions established in the study to protect third-party interests, as well as transfers from areas not covered by the study, would be permissible only following public hearings and authorization by the Board based on its decision that that transfer would not injure third-party rights as defined by applicable law.

An important question posed by this proposal is: Which agency would decide whether a proposed transfer is within the scope and terms of the study? One option would be to have DWR evaluate the transfer's consistency *vel non*

with the study as part of its negotiation of the purchase contracts and administration of the Water Bank. This option has the virtue of integrated and expeditious decisionmaking. It suffers, however, from the risk that, as both the central participant in the Water Bank transfers and the state agency with principal responsibility for ameliorating future water shortages, DWR might have an inordinate incentive to resolve close cases in favor of finding an exemption from Board review. In other words, DWR's duties as manager of the Water Bank make it the wrong agency to serve as guarantor of third-party rights.

The alternative would be to place the responsibility on the Board. For all its faults, the Board's statutory charge is to be a neutral regulatory agency, and its existing authority includes consideration and protection of fish and wildlife, water quality, and other third-party interests within areas-of-origin.²⁸³ Thus, the Board would be able to evaluate transfer proposals for consistency with the study exclusively as a regulator, unencumbered by potentially conflicting responsibilities for managing both the Water Bank and the state's water resources generally.

Assignment of this jurisdiction to the Board would require it to devise expedited procedures for analysis of the proposed Water Bank transfers, so that the transfers that are consistent with the study could proceed and the water reallocated swiftly to areas of critical demand. Moreover, the Board must be able to make the consistency determination without conducting public hearings and without its decisions being subject to review by the courts. This necessary limitation on public participation at the time of the transfer decision means, however, that there must be an alternative forum in which potentially affected third-parties and other interested members of the public can comment on and challenge the Board's analysis. The appropriate occasion for these types of public criticism to be heard is *before* the drought emergency occurs. Accordingly, the hydrologic, economic, and ecologic study should be promulgated as a regulation.

Because rulemaking would implicate the overlapping jurisdiction of the Board, DWR, and the Department of Fish and Game, these agencies could participate jointly in the hearings and promulgation of the Water Bank regulations. Alternatively, the Board or DWR could act as lead agency and consult with the other two in preparing the study. The state agencies also should attempt to coordinate their efforts informally, or through cooperative agreement, with interested federal agencies such as the Bureau of Reclamation, the United States Fish and Wildlife Service, the National Marine Fisheries Service, and the Environmental Protection Agency. However the proceedings are conducted, all interested members of the public would be invited to participate in the hearings and would have an opportunity to comment on the draft Water Bank rules before they become final. Individual notice might be provided to those surface water rights

283. See *supra* part II.B.

holders and groundwater users that could be affected by the operations of the Water Bank as authorized in the regulations. In addition, the final rules would be subject to judicial review. To ensure that the hydrologic, economic, and ecologic analyses on which the rule is based remained accurate in light of changing conditions and new information, the promulgating agencies should be required to revise the regulations at least every five years.

To accomplish these changes, legislation would be required. Some transfers that currently are subject to full review by the Board would be governed by the Water Bank regulations and could qualify instead for expedited review. Other transfers that presently may be undertaken without permission of any state agency would be brought within the purview of the new transfer procedures.²⁸⁴ The protected areas legislation as applicable to transfers of groundwater would be modified to remove local veto power over those transfers that are consistent with the Water Bank rules.²⁸⁵ And, for the first time, the scattered and sporadic statutory protections for third-party interests would be applicable in a consistent and comprehensive manner to all transfers associated with the Water Bank.

On the eve of the contract negotiations for the 1991 Water Bank, an attorney who has been one of the leading exponents of water transfers lamented: "Every year, transfers get more difficult. You would think they would get easier but they don't."²⁸⁶ In light of comments such as this, the prospects of a proposal to create new regulations to govern transfers to future water banks would appear to be inauspicious. But this brings us to the third lesson of the 1991 Water Bank: California has entered a new era in water marketing, the hallmark of which is concern about third-party interests and community rights. Unless these interests are recognized and protected, future water banks will be undermined. As Professor Sax has noted, however, if the protection of third-parties and local communities is available only in the form of "extensive participation and elaborate public interest hearings . . . all but the largest water transfers [will be rendered] uneconomic and untimely."²⁸⁷

In a way, it was fortunate that so few transfers to the 1991 Water Bank were subject to review for their possible effects on third-party interests. Yet, we were also lucky that apparently no permanent damage was imposed on the groundwater basin and overlying land along the Yolo Bypass, on the fisheries of the Delta and Sacramento River, on wildlife and migratory waterfowl whose food and habitat was temporarily diminished, and on the

284. See *supra* Part II.B.

285. See *supra* Part II. E.

286. David Newdorf, *The Scramble for Water*, S.F. RECORDER, Mar. 4, 1991, at 1 (quoting Paul M. Bartkiewicz).

287. Joseph L. Sax, 1 WEST-NORTHWEST 13, at 17 (1994).

economic base of the counties from which water was exported.²⁸⁸ It would be naive to suppose, however, that Yolo County officials, groundwater users, fish and wildlife advocates, and rural protection groups will sit by and permit future water transfers to occur without asserting their rights under the groundwater protection acts, the water transfer statutes, the public trust doctrine, and that other laws discussed in the article.²⁸⁹

Thus, the fourth lesson of the 1991 Water Bank is that it is not necessary to live with this type of zero-sum conflict between the goals of prompt response to drought-related water shortages and recognition of third-party rights. Circumvention of the laws that have been enacted to protect third-parties devalues interests that are both economically and ecologically important and which have a long-standing basis in California water law.²⁹⁰ Yet, the existing alternatives—formal vetoes of water transfers, such as that created by AB 2897, or informal vetoes through administrative delays and litigation—threaten to frustrate the fundamental purpose of the Emergency Drought Water Bank.

The 1991 Water Bank was a bold experiment that helped the state through its most recent water crisis with few lasting negative consequences. Part of the success of the project was the result of creative lawyering and a sensitivity to the interests that were excluded from the negotiation and implementation of the transfers that formed the Water Bank. For the future, however, informal recognition of third-party interests will not suffice. The final lesson on the 1991 Water Bank, then, is that equally bold and innovative legal action is needed to accommodate both the market and the community.

288. U.C. CONFERENCE REPORT, *supra* note 126, at 15-42.

289. See *e.g.*, CALIFORNIA ACTION NETWORK & CALIFORNIA ASSOCIATION OF FAMILY FARMERS, SALES OF WATER IN CALIFORNIA: SOME THOUGHTS FROM AGRICULTURAL COMMUNITIES (1992).

290. See Sax, *supra* note 287, at 6.
