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**Confronting the Environmental Legacy of  
Irrigated Agriculture in the West: The  
Case of the Central Valley Project**

by

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# CONFRONTING THE ENVIRONMENTAL LEGACY OF IRRIGATED AGRICULTURE IN THE WEST: THE CASE OF THE CENTRAL VALLEY PROJECT

BY  
HARRISON C. DUNNING\*

*The recently enacted Central Valley Project Improvement Act (CVPIA) dramatically modifies the governing principles of the Central Valley Project. The project originally was premised on the notion that every drop of water in a river should be put to work producing power, irrigating crops, and supplying cities. The author argues that the CVPIA represents an important step toward "safe yield" management of surface waters and thus can serve as a model for water project reform elsewhere. He notes, however, that this legislation provides only a beginning of needed environmental restoration in California's Central Valley. Thorough reform may require considerable downsizing of irrigated agriculture in the valley.*

## I. INTRODUCTION

On October 30, 1992, just before a presidential election, President Bush signed an important western water measure, the Reclamation Projects Authorization and Adjustment Act of 1992.<sup>1</sup> The legislation contains forty titles, some of which authorize water projects. Part of the statute thus is composed of what many regard as "pork barrel legislation," authorizing activities such as the completion of the Central Utah Project and construction of other federal water and power projects throughout the West.<sup>2</sup>

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\* Professor of Law, University of California at Davis. This essay is based on a lecture delivered on November 12, 1992, as part of the Northwestern School of Law of Lewis & Clark College's Distinguished Visitor in Environmental and Natural Resources Law series. The very able research assistance of Joseph F. Krovoza of the Class of 1994 at the U.C. Davis School of Law is gratefully acknowledged.

1. Reclamation Projects Authorization and Adjustment Act of 1992, Pub. L. No. 102-575, 106 Stat. 4600 [hereinafter Reclamation Projects Act].

2. Note, however, that the Central Utah Project construction provisions, *id.*

Title 34 of that bill is quite different, for it deals with reform rather than initiation of a federal water project. The title has its own name: the Central Valley Project Improvement Act (CVPIA).<sup>3</sup> The CVPIA exemplifies an important shift in thinking about federal water policy in California. Parts of the legislation might serve as a possible model for water project reform throughout the West.

This Essay examines the CVPIA in light of the environmental legacy of the Central Valley Project. Section II begins with a description of the Central Valley before human development of its vast water resources. Section III then describes the ethic that propelled the development of CVP, while Section IV elucidates the environmental effects of that "putting water to work" ethic. Alternative ideas about water use are presented in Section V. The next section describes various environmental laws which have affected operation of the CVP. Section VII examines the significant environmental provisions of the CVPIA. After reviewing the substantial uncertainties in the future of the CVP in Section VIII, I argue in Section IX that any significant environmental improvements in the Central Valley Project will depend upon both a strong, active constituency and bold, innovative thinking.

## II. CALIFORNIA'S HISTORICAL CENTRAL VALLEY

Many people are familiar with the work of Marc Reisner, author of *Cadillac Desert*.<sup>4</sup> Widely read and discussed throughout the West, that book is a trenchant attack on the Bureau of Reclamation. In a coauthored follow-up book called *Overtapped Oasis*,<sup>5</sup> Reisner describes the environmental attributes of the Central Valley of California before the European settlers arrived. He compares the Central Valley to the magnificent Serengeti Plain in East Africa, that wonderful area teeming with wildlife which straddles the border between Kenya and Tanzania. He writes of the historic Central Valley in which

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at §§ 200-212, 106 Stat. at 4605-25, are complemented by numerous provisions on fish, wildlife, and recreation mitigation and conservation in central Utah. *Id.* at §§ 301-315, 106 Stat. at 4625-48.

3. *Id.* § 3401, 106 Stat. at 470.

4. MARC REISNER, *CADILLAC DESERT* (1986).

5. MARC REISNER & SARAH BATES, *OVERTAPPED OASIS: REFORM OR REVOLUTION FOR WESTERN WATER* (1990).

[a]ntelope and tule elk were countless—a million of each species is a widely accepted figure. Thousands of grizzly bears roamed the valley floor and foothills. Millions of spawning salmon, silvers and chinooks, swam up the river year round. . . . In the wintertime came the most impressive sight of all: skies almost overburdened with migrating ducks, geese, white pelicans and sandhill cranes, arriving from a great arc of summer habitat stretching from western Manitoba to Siberia.<sup>6</sup>

Reisner paints an inspiring picture of the wildlife resources once found in the Central Valley. These resources, however, are now largely lost. Partial restoration of them depends on the implementation of new water management norms for the Central Valley, where two great river systems come together. The Sacramento River flows south through the Sacramento Valley and the San Joaquin River flows west and then north through the San Joaquin Valley. These rivers join in a magnificent delta area, now greatly modified by human activity, and then flow to the sea through Suisun Bay, San Pablo Bay, San Francisco Bay, and finally the Golden Gate.

Before the European settlement, the valley experienced enormous floods.<sup>7</sup> The Sierra snowpack formed in the wintertime and melted in the spring, causing great flood waters to flow into the Sacramento and the San Joaquin. Very large seasonal wetland areas were created; as a rough estimate, the valley contained 4,500,000 acres of wetlands.<sup>8</sup> In addition to the rivers and wetlands, the waters created an important estuary in the delta, where fresh water and sea water mix by the force of tidal action.

The large numbers of settlers, who came to California during and following the gold rush, tremendously modified the Central Valley. In order to claim farmland, settlers drained the wetlands, put in levee systems, and dug diversion ditches to take the water

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6. *Id.* at 38.

7. See ROBERT KELLY, *BATTLING THE INLAND SEA: AMERICAN POLITICAL CULTURE, PUBLIC POLICY, AND THE SACRAMENTO VALLEY 1850-1986* (1989) (discussing magnitude of floods in Sacramento River Valley and succession of projects to control them since California Gold Rush).

8. See BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, *REPORT ON REFUGEE WATER SUPPLY INVESTIGATIONS: CENTRAL VALLEY HYDRAULIC BASIN, CALIFORNIA 2* (1989); PETER STEINHART, *TRACKS IN THE SKY: WILDLIFE AND WETLANDS OF THE PACIFIC FLYWAY 94* (1987).

out of the streams and off to the farms.<sup>9</sup> Later, the settlers built storage facilities in the foothills to store increasing amounts of water for irrigated agriculture. Thus, the Valley had changed enormously in the 1800s and early 1900s before the Bureau of Reclamation built the CVP. Nonetheless, the CVP brought with it significant further environmental change.

### III. PUTTING WATER TO WORK

The CVP is a massive public works project. It grew from an idea which had been around for a long time before the federal government got involved. As far back as the 1870s, people planned to move surplus water in the Sacramento Valley to the deficit areas in the San Joaquin Valley.<sup>10</sup> Northwesterners are familiar with people looking at abundant river systems, believing that the water is not really being put to good use, and arguing for diversion to someplace else where it can be put to better use. The Columbia River has been a target before and may be a target again.<sup>11</sup> This attitude prevailed in the 1880s with regard to the waters of the Sacramento Valley. Largely viewed as surplus water, some Californians thought that water not being put to beneficial use in the Sacramento Valley ought to be moved down into the San Joaquin Valley.

That idea took on a lot more currency at the end of the 1910s when Colonel Robert Bradford Marshall created his own Marshall Plan, long before the reconstruction of Europe after World War II.<sup>12</sup> Formerly the Chief Geographer for the U.S. Geological Sur-

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9. See KELLY, *supra* note 7, at 45-66. See also DONALD J. PISANI, FROM THE FAMILY FARM TO AGRIBUSINESS: THE IRRIGATION CRUSADE IN CALIFORNIA AND THE WEST 1850-1931, at 78-101 (1984) (discussing difficulties of early reclamation projects).

10. See BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, CENTRAL VALLEY PROJECT: ITS HISTORICAL BACKGROUND & ECONOMIC IMPACT 2 (1981) (noting "Alexander Survey" of 1874 for President Grant as an early example of this recommendation); see also KELLY, *supra* note 7, at 126-127 (mentioning recommendations of Alexander Commission that resulted from survey); PISANI, *supra* note 9, at 113-117 (discussing Alexander Commission's recommendations).

11. See NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE 317, 320 (1973).

12. COL. ROBERT BRADFORD MARSHALL, IRRIGATION OF TWELVE MILLION ACRES IN THE VALLEY OF CALIFORNIA (1919); NORRIS HUNDLEY, JR., THE GREAT THIRST: CALIFORNIANS AND WATER, 1770s-1990s 239 (1992).

vey, Colonel Marshall in this regard acted in a private capacity. He drafted rather detailed proposals for moving supposedly surplus Sacramento Valley water south into the San Joaquin Valley. His plan became very controversial in California in the 1920s, because hydropower development commonly accompanied multi-purpose water projects. The private power interests in California in the 1920s were not at all interested in development of public power. Measures to implement the Marshall Plan made the ballot several times in the 1920s, but failed each time. The Pacific Gas & Electric Company, a major utility even then, funded much of the opposition.<sup>13</sup>

The Depression changed things. The Depression did not hit California as hard as it did the East, but nonetheless the state experienced severe economic problems. The attitude toward the CVP changed because such a big project meant jobs. After legislative approval, the state CVP plan was placed on the ballot by way of the referendum process. The voters approved the state CVP in 1933.<sup>14</sup> When the state CVP was finally put on the books and Californians were ready to implement the Marshall Plan, however, the project's promoters ran into financing problems. They were advised that it would be difficult to sell the bonds necessary to finance construction of the initial units. With hat in hand, the water leaders of California went to Washington and asked President Roosevelt to have the federal government build their fully planned project. Roosevelt accepted. The federal government took the CVP over in 1935 as a relief project,<sup>15</sup> placed it into the reclamation program in 1937,<sup>16</sup> and went ahead to implement the main features<sup>17</sup> (shown in map at Figure 1).

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13. See MARY MONTGOMERY & MARION CLAWSON, HISTORY OF LEGISLATION AND POLICY FORMATION OF THE CENTRAL VALLEY PROJECT 57-61 (U.S. Dep't of Agriculture, Bureau of Agriculture and Economics, ed., 1946) (documenting that most significant support for a referendum seeking to overturn the state water project came from private power interests, particularly Pacific Gas & Electric Co.).

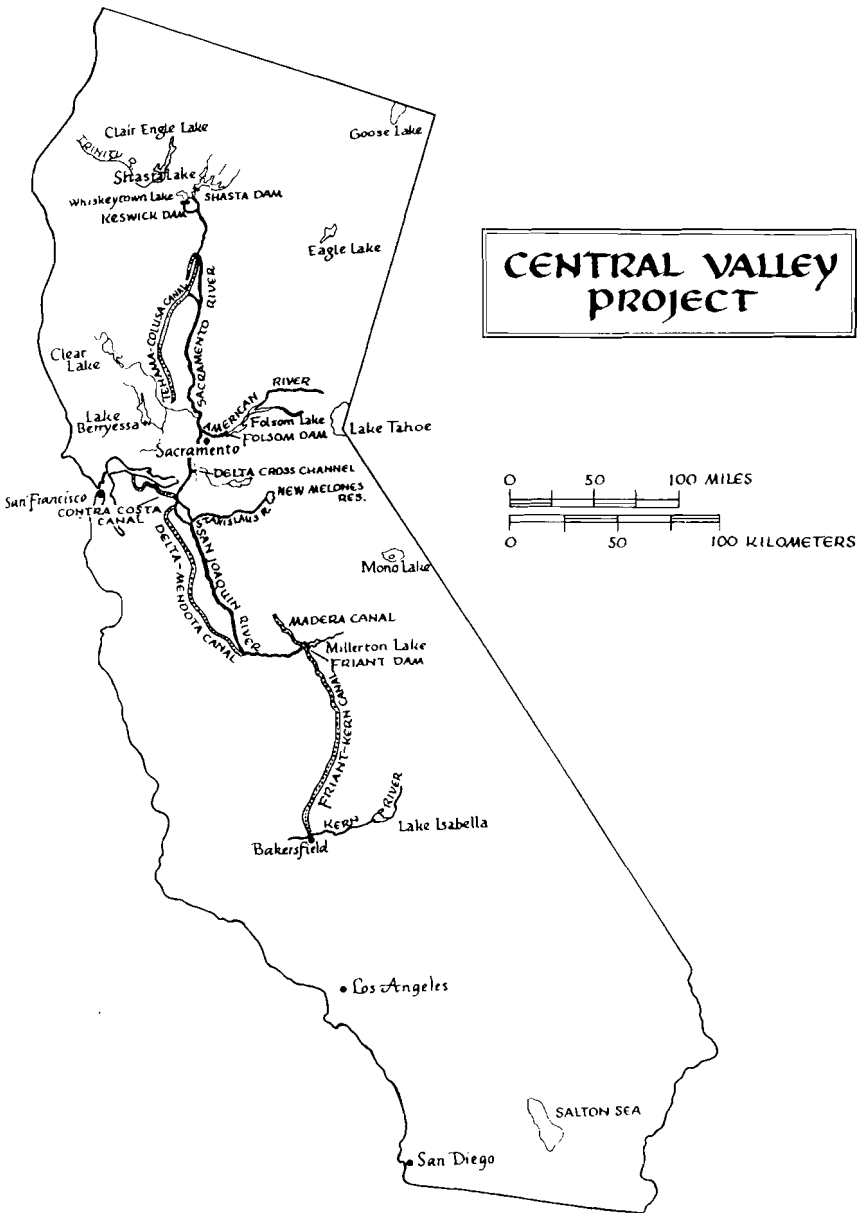
14. Act of Aug. 5, 1933, ch. 1042, 1933 Cal. Stat. 2643.

15. Emergency Relief Appropriations Act of 1935, ch. 48, 49 Stat. 115 (authorizing Bureau of Reclamation to build Friant Dam); Act of Aug. 30, 1935, ch. 831, 49 Stat. 1028, 1038 (1935) (authorizing Army Corps of Engineers to begin construction of Shasta Dam).

16. Act of Aug. 26, 1937, ch. 832, 50 Stat. 844, 850 (bringing both projects under control of Bureau of Reclamation).

17. See generally HUNDLEY, *supra* note 12, at 252-57.

Figure 1



As constructed, the CVP stores large amounts of water in the headwaters of the Sacramento River system at Shasta Dam near the Oregon border. When needed, it releases water down the Sacramento River.<sup>18</sup> Once the water reaches the Sacramento-San Joaquin Delta, its passage south is facilitated by transport in the Delta Cross Channel to the southern Delta. At Tracy, the water is pumped into the Delta-Mendota Canal. That canal carries CVP water down the west side of the San Joaquin Valley, over to the middle of the valley, and dumps it into the Mendota Pool. Thus, the water from Shasta Dam largely ends up in the Mendota Pool to replenish a dewatered San Joaquin River, which is blocked at the Friant Dam on the upper San Joaquin River. Water from the Friant Dam is sent north through the Madera Canal and south through the Friant-Kern Canal in order to supply irrigation water to extensive federal service areas.

This massive reworking of natural flows in the Central Valley was undertaken largely to help east side San Joaquin Valley farmers, many of whom had seriously overdrafted their groundwater resources while farming through a severe drought from 1928 to 1934. Water from the Sacramento Valley covered needs of the lower San Joaquin River water rights holders, so that east side farmers could be served water from Friant Dam via canals. The enormous scope of the CVP was best captured by Justice Robert Jackson, writing for the U.S. Supreme Court in 1950.<sup>19</sup> He eloquently wrote of how the Sacramento River and the San Joaquin River together "collect tribute from many mountain currents, carry their hoardings past parched plains and thriftlessly dissipate them in the Pacific tides."<sup>20</sup> Justice Jackson's words, however, reflected a notion, very common at the time, that fresh water is wasted when it flows into the ocean. The old engineering dictum, still sometimes heard today, speaks of the need to avoid fresh water "wasting to the sea." Water conservation was the solution to wasted water. Of course, at that time, "water conservation" did not mean low-flow showerheads or drip irrigation. Water conservation then meant building a dam, creating a reservoir, and conserving the yield from the river to be used

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18. The original Marshall plan called for aqueducts on both sides of the Sacramento Valley. MARSHALL, *supra* note 12, at 8, 9-10.

19. United States v. Gerlach Live Stock Co., 339 U.S. 725 (1950).

20. *Id.* at 728.



beneficially.

When Justice Jackson wrote about the CVP and the enormous amount of power produced at Shasta for use throughout the state, he was aware of the boldness of the enterprise, the decisiveness with which people had acted, and the massive reworking of nature in order to serve humankind that had taken place. The CVP reflected the ethic that Donald Worster identified as characteristic of the time in his wonderful book, *Rivers of Empire*.<sup>21</sup> The notion was to put water in rivers to work, even if it meant killing the river as an ecological system. When Earl Warren was Governor of California in 1945, he gave a speech to a California Water Conference in which he reflected very directly the ethic that Worster talks about in his book. Governor Warren stated: "In my opinion we should not relax until California has adopted and put into operation a statewide program that will put every drop of water to work."<sup>22</sup>

#### IV. EFFECTS OF THE TRADITIONAL WATER USE ETHIC

"Every drop of water to work" and no "waste to the sea" reflected a very narrow conception of what "work" meant for water. Work for water meant irrigation, municipal supply, and power production. Work was not being done if water was left in the river for such things as salmon or the non-economic benefits of in-stream flows. The ethic was very different from today's notions. And it was reflected in the very deliberate decision to divert virtually the entire flow of the San Joaquin for agriculture.<sup>23</sup>

Water from the Friant Dam was only to be released to satisfy

21. DONALD WORSTER, *RIVERS OF EMPIRE: WATER, ARIDITY, AND THE GROWTH OF THE AMERICAN WEST* (1985).

22. Joel W. Hedgpeth, *The Passing of the Salmon*, reprinted in CALIFORNIA'S SALMON AND STEELHEAD 52, 59 (Alan Lufkin ed., 1991) (quoting former Governor Earl Warren). Another clear expression of this ethic appears as an unattributed quotation on the cover of a Department of the Interior report to Congress regarding the status of the Central Valley Project. It reads: "*Our Rivers: Total Use for Greater Wealth*." S. Doc. No. 113, 81st Cong., 1st Sess. (1949). This report also provides an comprehensive look at early CVP development. For excellent bibliographies on early developments, see Margaret Rohrer, *Water Resources Development in the Central Valley of California: General Materials*, 38 CALIF. L. REV. 761 (1950) and George W. Miller, *Selected Materials on Legal Aspects of the Central Valley Project of California*, 38 CALIF. L. REV. 776 (1950).

23. 18 Op. Cal. Att'y Gen. 31, 33 (1951).

certain rights of riparians and groundwater pumpers immediately downstream from the dam.<sup>24</sup> Users further downstream than Gravelly Ford were to be paid compensation, but they were not given water. In the stretch between Gravelly Ford and the Mendota Pool, twenty-two miles of riverbed would normally have no water at all. Thus, a major river in the West was entirely and deliberately dewatered, except in flood years. People understood that only in extraordinary situations would water flow down the river.

Obviously, the spring-run salmon that had travelled through the Golden Gate to the headwaters of the San Joaquin above Friant Dam were allowed to become extinct. The San Joaquin spring-run salmon population numbered 56,000 in 1946. In 1947, the number had dropped to 26,000.<sup>25</sup> And in 1948, the Friant Dam and the two canals went into full operation; thereafter, the river contained no water whatsoever for fish. In the north, the project authorities decided not to have fish passage facilities at Shasta Dam, even though the winter-run chinook salmon had traditionally spawned in the McCloud River drainage above Shasta Dam.

After World War II, when the Shasta and Friant Dams were in place, a second round of projects expanded the CVP. Whereas the first phase of the CVP was directed primarily at helping the farmers of the east side of the San Joaquin Valley, the second phase largely assisted those on the west side. The Trinity River in Northern California was dammed and its water was sent through a tunnel to add to the Shasta Dam supply. While the Trinity was not entirely dewatered, most of its water was diverted to assist westside irrigation, causing enormous damage to fisheries. Despite a growing consciousness about damage to fisheries, those of the Trinity River were basically sacrificed, with the salmon runs cut by about ninety percent.<sup>26</sup>

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24. See Leland O. Graham, *The Central Valley Project: Resource Development of a Natural Basin*, 38 CAL. L. REV. 588, 596-600 (1950) (discussing disposition of water rights and delivery of water from Friant Dam to Gravelly Ford area on San Joaquin River as a result of the CVP); see generally 18 Op. Cal. Att'y Gen. 31, 34 (1951) (categorizing disposition of water rights).

25. George Warner, *Remember the San Joaquin*, reprinted in CALIFORNIA'S SALMON AND STEELHEAD 61, 63 (Alan Lufkin ed., 1991).

26. See *San Luis Irrigation Development: Hearings on S. 178 Before the Subcomm. on Irrigation and Reclamation of the Senate Comm. on Interior and*

Also part of the second phase, a smaller federal dam was constructed on the American River. This dam also enabled both new and more intensive irrigation in areas on the west side of the San Joaquin Valley. The San Luis unit of the CVP was developed to provide water for a number of districts, including the famous Westlands Water District, which serves up to 600,000 acres of irrigated land on the west side.

One of the more recent aspects of the CVP has been the construction of canals on the west side of the Sacramento Valley. The Red Bluff Diversion Dam supplies the Corning Canal and the Tehama-Colusa Canal. When building the Red Bluff Diversion Dam, the federal government vowed it would take care of the fish by installing state-of-the-art fish protection facilities. However, the fish facilities in these units simply have not worked.<sup>27</sup> Even worse, much of the agricultural drainage elsewhere in the Central Valley has been discovered to be toxic, with absolutely disastrous environmental consequences.

Much of the west side of the San Joaquin Valley is composed of marine sediments, heavy in selenium. Selenium is considered a nutrient at low levels, but toxic at higher levels.<sup>28</sup> Surprisingly, little difference exists between low and high level amounts. Scientists have recently discovered that irrigation processes in some parts of the west side of the San Joaquin Valley have liberated

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*Insular Affairs*, 84th Cong., 2d Sess. 84 (1956) (statement of W.A. Dexheimer, Commissioner of Reclamation, U.S. Dep't of Interior, that new water supply for the CVP was to come from the Folsom Unit on the American River and the Trinity River project on the Trinity River, and that largest block of land having a critical need for supplemental water was the upper west side of the San Joaquin Valley). Although the Folsom Unit has been operated on a "safe yield" basis, see generally Stuart L. Somach, *The American River Decision: Balancing Instream Protection with Other Competing Beneficial Uses*, 1 RIVERS 251 (1990) (discussing decisions that have maintained American River flows adequate to protect existing environmental resources), the Trinity River Division has diverted 90% of that river's flows. This has resulted in severe environmental harm. Merrill R. Goodall & John O. Sullivan, *Water System Entities in California: Social and Environmental Effects*, in SPECIAL IRRIGATION DISTRICTS: CHALLENGE FOR THE FUTURE 72, 82 (James N. Corbridge ed., 1983).

27. See Richard J. Hallock, *The Red Bluff Diversion Dam*, in CALIFORNIA'S SALMON AND STEELHEAD 96 (Alan Lufkin ed., 1991) (giving an introduction to fishery problems created by Red Bluff Diversion Dam).

28. For an introduction to selenium, its presence at the Kesterson National Wildlife Refuge, and its existence throughout the West, see TOM HARRIS, *DEATH IN THE MARSH* (1991).

selenium, which contaminates drainage water. Yet heavy clay layers just below the surface on the west side make drainage management essential if irrigated agriculture is to flourish in this region.

Several years ago, a plan was developed to take drainage water from the west side of the San Joaquin Valley for disposal in the Sacramento-San Joaquin Delta.<sup>29</sup> Only a portion of that drain was ever built; it ended near a place called Kesterson. In the original plan, the Kesterson site was supposed to be a regulating reservoir for the drainage water on its way from the Westlands area and other west side districts north to the Delta. Due to financing difficulties and environmental objections to possible pesticide contamination in the Delta, the so-called "Master Drain" was never completed.<sup>30</sup>

Thus, Kesterson turned out to be a terminal reservoir for the drain water, rather than a regulating reservoir. Quite understandably, people concerned about loss of wetlands saw the drainage reservoir as a possible resource for the waterfowl using the Pacific Flyway. The drainage reservoir, a sump for the selenium-laden water, became the Kesterson National Wildlife Refuge. Unfortunately, selenium became concentrated in vegetation and invertebrates. Waterfowl using that area as part of the Pacific Flyway were very seriously damaged, as manifested by many mortalities and deformities. Scientists did not discover that toxic drainage was poisoning the waterfowl until 1983.

Recently, Tom Harris, a journalist who worked on the selenium problem for the *Sacramento Bee*, wrote a book that brings a great deal of information together. In *Death in the Marsh*, Harris describes instances all over the West where selenium contamination has occurred.<sup>31</sup> Not only a wildlife problem, selenium is a human health problem.<sup>32</sup> Many undiagnosed situations exist, Harris believes, where people are suffering from selenium poisoning and physicians simply do not recognize it. Some medical re-

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29. U.S. DEP'T OF INTERIOR & CAL. RESOURCES AGENCY, FINAL REPORT OF THE SAN JOAQUIN VALLEY DRAINAGE PROGRAM, A MANAGEMENT PLAN FOR AGRICULTURAL SUBSURFACE DRAINAGE AND RELATED PROBLEMS ON THE WESTSIDE SAN JOAQUIN VALLEY 15-17 (1990) [hereinafter MANAGEMENT PLAN].

30. *Id.* at 16.

31. TOM HARRIS, DEATH IN THE MARSH, 190-207 (1991).

32. *Id.* at 212.

search has been done on the selenium dilemma. Harris writes of one doctor who spent much of his lifetime studying selenium poisoning in South Dakota.<sup>33</sup>

Thus, the CVP has left a devastating environmental legacy. Some of the negative impacts include long dewatered reaches on a major river, toxic drainage, and temperature problems. In addition, the CVP contributes to both declining fresh water inflows in the Delta estuary and an interesting phenomenon of reverse flows in the south Delta.<sup>34</sup> Heavy pumping and diminished fresh water outflows cause the San Joaquin River at times to actually flow in reverse. Anadromous fish find it difficult to figure out how to get to the ocean or a natal stream in such circumstances.

Whatever the CVP's benefits for the farming economy of California, the United States, and the U.S. balance of payments, the CVP has unquestionably been a debacle for the environment. Some species have become extinct, like the spring-run salmon on the San Joaquin. Other species have been listed as endangered or threatened under the federal Endangered Species Act, while still more deserve to be listed.<sup>35</sup> This environmental debacle has been driven by the ethic that Earl Warren articulated in 1945—put every single drop of water to work for irrigation, municipal use, industrial use, and power production.

## V. COMPETING IDEAS OF STEWARDSHIP AND SAFE YIELD

Other voices could have been heeded at the time Earl Warren spoke. For example, Aldo Leopold's lifetime of achievement within the Forest Service and as a professor of game management began early in the century and culminated just after Warren spoke. Leopold's now-famous book, *A Sand County Almanac*,<sup>36</sup> was published in 1949 one year after his death. Leopold advocated a land ethic based on a notion of a stewardship with regard to land and water, but his voice was not heard widely at the

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33. *Id.* at 61-64, 68-87.

34. SAN FRANCISCO ESTUARY PROJECT, STATE OF THE ESTUARY: A REPORT ON CONDITIONS AND PROBLEMS IN THE SAN FRANCISCO BAY/SACRAMENTO-SAN JOAQUIN DELTA ESTUARY 137-39 (1992).

35. See *infra* notes 58-60, 62 and accompanying text.

36. ALDO LEOPOLD, A SAND COUNTY ALMANAC AND SKETCHES HERE AND THERE (1949).

time.<sup>37</sup>

Some contemporaneous opposition arose against the construction of Friant Dam, but most of it was economic. The City of Fresno was concerned that its groundwater supplies would not be adequately recharged when the CVP diverted virtually all the San Joaquin River flow. Downstream riparians also thought they were not being treated properly. Thus, several lawsuits were filed against the federal government over the Friant Dam. For example, the Northern California Joint Council International Fishermen's Union, the Northern California Fisheries Association, and the Isaac Walton League of America filed suit on behalf of the people who relied on the salmon catch offshore of San Francisco.<sup>38</sup> They sought flows to protect spring and fall runs of the San Joaquin salmon.

In 1950, the Attorney General of California became interested in one case challenging Friant Dam.<sup>39</sup> In an *amicus* brief, the Attorney General supported injunctive relief to obtain minimal water releases for fish.<sup>40</sup> The fisheries groups had been seeking about releases of 250 cubic feet per second. After the groups' lawsuit failed for lack of standing, the Attorney General was allowed to intervene. The Attorney General actually gained a preliminary agreement to have releases for fish.<sup>41</sup> While the agreement provided only a negligible amount of water—twenty-five cubic feet per second from a project that was going to store 500,000 acre feet per year (3.6% of annual storage)—it provided water for fish in addition to the water for the downstream claimants.

This agreement, however, did not stick. An intense conflict developed within California state government between the agency

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37. In his essay *The Land Ethic*, Aldo Leopold states: ". . . a land ethic changes the role of *Homo sapiens* from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow members, and also respect for the community as such." *Id.*

38. Memorandum from Henry Holsinger to A.D. Edmonston 3 (March 29, 1950) (internal correspondence of state Division of Water Resources) (discussing adjudication of San Joaquin River water rights) (on file with author).

39. Rank v. Krug, 90 F. Supp. 773 (S.D. Cal. 1950).

40. *Id.* at 801.

41. Memorandum from Irving Pfaffenberger to Henry Holsinger 7 (May 19, 1950) (Division of Water Resources internal report on May 15-18 Rank v. Krug Hearings) (on file with author).

concerned with fish and the agency concerned with water. Ultimately, the conflict was resolved in a 1951 opinion promulgated by the new Attorney General.<sup>42</sup> Edmund G. "Pat" Brown authored the opinion in his first year as Attorney General. Brown later became Governor of California and the architect of the California State Water Project.<sup>43</sup>

Pat Brown's opinion dealt with an apparent conflict in state law between one provision that required dam operators to release enough water to keep downstream fish in "good condition,"<sup>44</sup> and another in the Water Code that listed the first and best use of water as domestic and the next as irrigation.<sup>45</sup> The authors of the Attorney General's opinion approached the conflict in the context of the state legislation authorizing the CVP, which apparently assumed that the entire river flow would be dedicated to irrigation. The state water plan reflected the ethic of putting water to work. The authors found that the release language really does not provide any water for the fish, rather only a standard for release for fish if surplus water remains after all domestic and irrigation needs are satisfied.<sup>46</sup> The opinion reflected an extraordinarily narrow reading of language that would seemingly provide some water for the fish, but the logic is understandable in the context of the values about surface water at the time.

Interestingly, at the very time that Pat Brown was promulgating this legal opinion on fish releases at Friant, California groundwater law was developing somewhat differently. One famous groundwater case, *Pasadena v. Alhambra*,<sup>47</sup> was decided in 1949, just two years before the Pat Brown opinion. The decision reflected an idea of California groundwater law that had roots at least as far as 1908, that is, that the combined pumping by all producers may not exceed the safe yield of the aquifer.<sup>48</sup>

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42. 18 Op. Cal. Att'y Gen. 31 (1951).

43. See Edmund G. "Pat" Brown, *Foreword* to *ACHIEVING CONSENSUS ON WATER POLICY IN CALIFORNIA* at xiii-xv (James A. Regalado & Rita Schmidt Sudman eds., 1992).

44. CAL. FISH & GAME CODE § 5937 (West 1984).

45. CAL. WATER CODE § 106 (West 1992).

46. 18 Op. Cal. Att'y Gen. 31, 37-38 (1951). See also 57 Op. Cal. Att'y Gen. 577 (1974).

47. *Pasadena v. Alhambra*, 207 P.2d 17 (Cal. 1949), cert. denied, 339 U.S. 937 (1950).

48. *Burr v. Maclay Rancho Water Co.*, 98 P. 260 (Cal. 1908). "[I]n no event

*Pasadena v. Alhambra* is clearly not an environmental case. The court saw the long-term benefit of the groundwater pumpers as a reason to limit pumping to safe yield. The decision is only partly scientific, because of the policy judgment required to determine how much pumping constitutes the safe yield. The court was aware that if pumpers continuously take more than the safe yield, the resource would ultimately be destroyed. The result would be a drop in the water table, subsidence, and water quality problems.

The safe yield idea could be extended into the surface water area. The idea could be used to protect the environmental advantages of the water resource as well as the long-term economic interests of the water users. The safe yield of the San Joaquin River collected at Friant Dam could be given to the irrigators, leaving enough water to maintain some public values associated with the fish and the riparian vegetation.

As the CVP and other water projects are reviewed, a new ethic may be found somewhere between the "take-it-all-and-put-it-to-work" attitude of Earl Warren and the stewardship notion of Aldo Leopold. Maybe water can be put to work for power production, irrigated farming, municipal supply, and industrial use, up to some limit. Perhaps the appropriate limit is the safe yield. Possibly, the new CVP legislation attempts to set such limits.

## VI. LAWS AFFECTING OPERATION OF THE CVP

The CVPIA is not the first time that the law has changed operation of the CVP to make it more sensitive to environmental concerns. A series of collateral attacks by laws of general applicability has altered the operation of the CVP.<sup>49</sup> Water quality laws, for instance, have been a very important source of controlling norms. The CVP inherently deals with water quality. Salinity problems are of chief importance in the Delta, where, if the fresh water flow drops too low, then the salt water comes in from the San Francisco Bay. Salinity intrudes into the diversions for agri-

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shall the defendant be allowed to take of the waters in the strata pierced by its wells, a quantity greater than is supplied thereto from the average annual rainfall upon the watershed contributing thereto . . ." *Id.* at 264-65. *Pasadena*, 207 P.2d at 27.

49. Federal Water Pollution Control Act, 33 U.S.C. §§ 1252-1387 (1988); Endangered Species Act, 16 U.S.C. §§ 1531-1544 (1988); Migratory Bird Treaty Act, 16 U.S.C. §§ 703-715 (1988).



cultural lands of the Delta; the intakes for industrial facilities such as oil refineries and sugar companies; even into the pumps of the CVP and the State Water Project. The farmers in the San Joaquin Valley do not want salt water, so inevitably the CVP operators must maintain sufficient fresh water flows to keep out saltwater.

At one point, officials considered placing physical structures in the estuary to control the salinity.<sup>50</sup> Such methods are used in other parts of the world. Construction of such physical barriers was rejected, however, leaving only a hydraulic barrier to deal with the salinity. State and federal water quality law controls the CVP to ensure sufficient fresh water flows into the Delta to maintain good water quality at the pumps.<sup>51</sup> Over time, this body of law has been used to impose higher salinity standards and more stringent water quality objectives in the Delta area and the Suisun Bay area. Beyond assuring fresh water availability at the pumps and to rich agricultural lands in the central Delta, suitable amounts of fresh water must also be provided in the mixing zone for fish and wildlife.

Other aspects of federal and state law have had some bearing on the CVP. The Migratory Bird Treaty Act,<sup>52</sup> for instance, was used as the basis for shutting down the Kesterson National Wildlife Refuge.<sup>53</sup> After selenium contamination at Kesterson was found by scientists in 1983, lawyers in the Department of the Interior advised their superiors of possible criminal liability under the Migratory Bird Treaty Act. Case law indicated that operating Kesterson with such devastating impacts on the waterfowl might result in criminal liability.<sup>54</sup> The head of the Mid-Pacific Region

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50. This proposal was known as the Reber Plan, named for its major proponent, John Reber. ERWIN COOPER, *AQUEDUCT EMPIRE* 266-67 (1968).

51. See *United States v. State Water Resources Control Bd.*, 227 Cal. Rptr. 161, 165-75 (1986) (introducing legal issues related to interplay between water rights and water quality law pertaining to Sacramento-San Joaquin Delta). For the most recent state attempt to satisfy federal water quality requirements by, in part, demanding more flows to the Delta, see *STATE WATER RESOURCES CONTROL Bd.*, *WATER RIGHT DECISION* 1630, *DRAFT* (1992).

52. 16 U.S.C. § 703-715 (1988).

53. See HARRIS, *supra* note 28, at 35-37.

54. See *United States v. Corbin Farm Serv.*, 444 F.Supp. 510 (E.D. Cal. 1978) (negligent spraying of pesticide leading to death of widgeons is a violation of the Migratory Bird Treaty Act); *United States v. F.M.C. Corp.*, 572 F.2d 902 (2d Cir. 1978) (ultra-hazardous activity causing death of waterfowl is a Migratory Bird

for the Bureau of Reclamation in Sacramento was advised to get his own lawyer.

Thereafter, the new Secretary of the Interior did something quite remarkable. The Secretary instructed his western liaison to attend a congressional committee hearing on the selenium problem and to announce that Kesterson would be shut down almost immediately. Furthermore, the federal government planned to stop delivering irrigation water to the problem portions of the Westlands Water District.<sup>55</sup> This announcement came as an enormous shock, even to the congressional committee.

Ultimately, representatives of Westlands Water District and others successfully negotiated with the government to rescind the irrigation water cut off. The Westlands users still get water, but the Kesterson Reservoir has been closed and its ponds filled. Thus, the aquatic contamination problem has become a terrestrial contamination problem as selenium enters the food chain by a new route.<sup>56</sup> Other species at Kesterson are now more impacted than waterfowl. Meanwhile, the drainage water concentrates in private ponds throughout the valley. Thousands and thousands of private ponds are now creating adverse impacts on waterfowl, yet nobody is being prosecuted under the Migratory Bird Treaty Act.<sup>57</sup>

Another aspect of the general law, the Endangered Species Act (ESA), has also led to changes in the operation of the CVP.<sup>58</sup> Several years ago, the winter run chinook salmon on the Sacramento River was listed as threatened under pressure from environmental groups.<sup>59</sup> Subsequently, that species was proposed for reclassification as endangered.<sup>60</sup> This listing has also led to some

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Treaty Act violation).

55. *Id.* at 38.

56. *Id.* at 192-97.

57. *Death in the Ponds*, 5 BAY ON TRIAL, Winter 1993, at 3; Tom Harris, *Favoritism Alleged in Selenium Delays*, SACRAMENTO BEE (California), Oct. 19, 1992, at A1.

58. 16 U.S.C. § 1531-1545 (1988).

59. Endangered and Threatened Species; Sacramento River Winter-Run Chinook Salmon, 55 Fed. Reg. 46,515 (1990) (nonemergency decision to list as threatened).

60. Endangered and Threatened Species; Endangered Status for Winter-Run Chinook Salmon, 57 Fed. Reg. 27,416 (1992).

changes in CVP operations on the Sacramento River.<sup>61</sup> Another species, the much less well known Delta smelt, was listed more recently,<sup>62</sup> after the last sampling effort found only two fish in eighty sites examined.<sup>63</sup> Listing petitions also have been filed for the longfin smelt and the Sacramento splittail.<sup>64</sup> The ESA will have a growing effect on CVP operations.

## VII. THE CENTRAL VALLEY PROJECT IMPROVEMENT ACT

The CVPIA changes the rules of the game regarding authorization of the CVP, transfers of water, water marketing, Bureau of

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61. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, A SUMMARY OF THE BUREAU OF RECLAMATION'S DECISIONS IN OPERATING THE CENTRAL VALLEY PROJECT FROM WATER YEAR 1988 THROUGH 1992, at 4-5 (1992). The Bureau's actions, in cooperation with the state, during the 1992 water year included:

- 1) maintaining minimum flows from Keswick Dam to ensure safe rearing and downstream passage of juvenile winter-run chinook salmon;
- 2) maintaining specific daily average water temperatures in the 26 miles of the winter-run spawning grounds of the upper Sacramento River between Balls Ferry and Keswick Dam to ensure optimum survival of eggs and emergent fry;
- 3) opening the Red Bluff Diversion Dam gates for a longer period of time to improve passage of adult and juvenile winter-run chinook salmon at the dam;
- 4) closing the Delta Cross Channel gates for an extended period to reduce diversions of juveniles into the Delta;
- 5) modifying operations of the Suisun Marsh Salinity Control Structure to reduce diversion of juveniles into Montezuma Slough; and
- 6) establishing an operations and management group to ensure that the actions called for by the reasonable and prudent alternatives are implemented.

*Id.* at 5. In addition, during the winter and spring of 1992 the Bureau released greater amounts of water from the Folsom Unit to meet water obligations otherwise met with Shasta Reservoir water. U.S. BUREAU OF RECLAMATION, DEP'T OF THE INTERIOR, BUREAU OF RECLAMATION'S CENTRAL VALLEY PROJECT TEMPERATURE OPERATION FOR PROTECTION OF THE WINTER-RUN CHINOOK SALMON 1 (1992). This conserved Shasta Reservoir water, aiding the Bureau's attempts to provide low-temperature water below Shasta Dam. *Id.*

62. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Delta Smelt, 58 Fed. Reg. 12,854 (1993).

63. *Id.* Nancy Vogel, *Delta Smelt Tally is Near All-Time Low*, SACRAMENTO BEE Nov. 4, 1992, at B1. The Delta smelt index decreased from 375 in 1991 to 75 in 1992. *Id.*

64. Telephone interview with Stephen E. Schwartzbach, Branch Chief, Environmental Contaminants, Sacramento Field Office, U.S. Fish & Wildlife Service (Feb. 1, 1993).

Reclamation water contracts, and water conservation.<sup>65</sup> This Essay, however, focuses on CVPIA protection of fish and wildlife.

First, the CVPIA settles a longstanding debate about the extent to which Congress authorized the CVP to be operated for fish and wildlife purposes.<sup>66</sup> The CVPIA explicitly authorizes such purposes within the preference scheme for allocation of CVP water. The first tier of preferences only includes navigation improvement, flood control, and river regulation.<sup>67</sup> The Act amends the second tier, which includes irrigation and domestic uses,<sup>68</sup> to also include fish and wildlife mitigation, protection, and restoration.<sup>69</sup> Thus, fish and wildlife protection purposes become equal to irrigation uses on this second tier. The CVPIA then places fish and wildlife enhancement on the third tier of priority, on the same footing as power generation.<sup>70</sup> It is particularly interesting that the Act thus distinguishes between fish and wildlife mitigation, protection, and restoration on one hand, and fish and wildlife enhancement on the other. Enhancement requirements appear to go beyond the mere remedial action required to make up for damage caused by the CVP.

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65. The CVPIA applies to the "Central Valley Project," which is statutorily defined to include more than the CVP. In the CVPIA, the terms "Central Valley Project" or "project" mean "all Federal reclamation projects located within or diverting water from or to the watershed of the Sacramento and San Joaquin rivers and their tributaries as authorized by [citing various acts]." Reclamation Projects Act, Pub. L. No. 102-575, § 3403(d), 106 Stat. at 4707. This broad definition includes for example, the Solano Project.

66. See *Central Valley Project Improvement Act: Hearings on S. 484 Before the Subcomm. on Water and Power of the Senate Comm. on Energy and Natural Resources*, 102d Cong., 1st Sess. 433-79 (1991) [hereinafter *CVP Hearings*], for an introduction to the legal issues relating to CVP water being required for fish and wildlife purposes prior to enactment of the CVPIA. See also *County of Trinity v. Andrus*, 438 F. Supp. 1368 (E.D. Cal. 1977) (Secretary of the Interior had no duty to modify operation of Trinity River Division during 1976-77 California drought to mitigate harm to Trinity River fish).

67. Act of August 26, 1937, ch. 832, 50 Stat. 844, 850. Salinity control has been held to be included in statutory purposes at this highest level. *United States v. State Water Resources Control Bd.*, 227 Cal. Rptr. 161, 192 (1986).

68. Act of Aug. 26, 1937, ch. 832, 50 Stat. 844, 850 (codified at 33 U.S.C. § 540). About 90 % of CVP water is sold for irrigation purposes. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, Bureau of Reclamation and the Central Valley Project 3 (1991).

69. Reclamation Projects Act, Pub. L. No. 102-575, § 3406(a)(1), 106 Stat 4601, 4714.

70. *Id.* § 3406(a)(2).

Second, the CVPIA sets a general goal of doubling anadromous fish runs by the year 2002. Specifically, the Secretary of the Interior is required to prepare a plan to double natural production of anadromous fish on CVP rivers.<sup>71</sup> Population increases will be measured against the average population level between 1967 to 1991.<sup>72</sup> Notably, the CVPIA provides an exception for the stretch of the San Joaquin River between Friant Dam and the Mendota Pool which has largely been dewatered.

Third, the CVPIA contains some very important general requirements. CVP operations, for instance, are required to comply with all California State Water Resources Control Board decisions about permits and licenses.<sup>73</sup> Previously, Congress had only required federal compliance with Board Decision 1485.<sup>74</sup> This 1978 decision limited CVP diversions to achieve compliance with certain water quality standards set for the Delta. In the new legislation, Congress requires compliance with all Board decisions that establish conditions for licenses and permits for the CVP.<sup>75</sup>

The Act also establishes a restoration fund of up to \$50 million supported by various kinds of new assessments.<sup>76</sup> Fisheries improvements to be funded include: mitigation devices at some of the pumping plants,<sup>77</sup> a structural temperature control device authorized for Shasta Dam,<sup>78</sup> and improved fish passage facilities at Red Bluff Diversion Dam.<sup>79</sup> The CVPIA requires that the plan for the dewatered portion of the San Joaquin River look beyond streamflows to channel modifications, riparian habitat, water quality, and the possibility of reestablishing a naturally reproducing anadromous fishery from Friant Dam to the estuary.<sup>80</sup>

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71. *Id.* § 3406(g), 106 Stat. at 4725.

72. *Id.* § 3406(b)(1), 106 Stat. at 4714.

73. Reclamation Projects Act, Pub. L. 102-545, § 3406(b), 106 Stat. 4606, 4714. *See also id.* § 3411(a).

74. Act of Oct. 27, 1986, Pub. L. No. 99-546, sec. 103, § 2, 100 Stat. 3050 (codified at 43 U.S.C. § 422).

75. Reclamation Projects Act, Pub. L. No. 102-575, § 3406(b), 106 Stat. 4601, 4714. *See also id.* § 3411(a), 106 Stat. at 4731.

76. *Id.* § 3407, 106 Stat. at 4726.

77. *Id.* § 3406(b)(20), 106 Stat. at 4719.

78. *Id.* § 3406(b)(6), 106 Stat. at 4717.

79. *Id.* § 3406(b)(10), 106 Stat. at 4717.

80. Reclamation Projects Act, Pub. L. No. 102-575, § 3406(c)(1), 106 Stat. at 4721.

Fourth, the CVPIA dedicates up to 800,000 acre-feet of CVP water to fish and wildlife purposes.<sup>81</sup> This amount adds to existing flow requirements, such as those in State Water Resources Control Board Decision 1485.<sup>82</sup> In times of low flow, this dedicated yield may be reduced up to 200,000 acre-feet in proportion to similar cuts in agricultural deliveries.<sup>83</sup> Thus, an amount between 600,000 and 800,000 acre-feet of water is dedicated from a project that produces between 3.5 and 8 million acre-feet per year. In addition, a minimum of 340,000 acre-feet is set aside for release into the Trinity River to satisfy Hoopa Valley Tribe water claims.<sup>84</sup> Additional firm water supplies are also required for National Wildlife Refuges, some state wildlife areas, and even some private wildlife areas.<sup>85</sup> Altogether 1.2 to 1.3 million acre-feet of water is set aside for environmental purposes.

#### VIII. UNCERTAINTIES IN THE FUTURE OF THE CVP

Beyond next year's water levels, other uncertainties control the future of the Central Valley. The first uncertainty is whether Congress is really finished. Last year's tremendous political battle witnessed a rare occurrence in which a California Senator was "rolled," as they say in Washington.<sup>86</sup> John Seymour, the Republican Senator who lost in the last election, bitterly opposed the CVPIA. The CVPIA passed anyway, because of its various pork-barrel provisions. Western Governors and Senators from states such as Utah, Wyoming, Arizona, and Kansas wanted the bill to pass and the President to sign it. In the end, the President had to make a political judgment—California looked like a lost cause for him in the presidential election, so he apparently decided to sign the omnibus bill, with the hope that he would pick up votes in

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81. *Id.* § 3406(b)(2), 106 Stat. 4601, 4715.

82. However, this water may be used to meet additional flow requirements imposed under state or federal law following enactment of the CVPIA. *Id.* § 3406(b)(2), 106 Stat. at 4716. For 1993, the U.S. Fish and Wildlife Service is proposing to treat 400,000 acre-feet required for Delta smelt, listed as threatened under the Endangered Species Act, as part of the 800,000 acre-foot dedication.

83. *Id.* § 3406(b)(2)(C), 106 Stat. at 4716.

84. *Id.* § 3406(b)(23), 106 Stat. at 4720.

85. *Id.* at § 3406(d)(1)-(2), 106 Stat. at 4722-23.

86. Michael Doyle, *Seymour Isolated in Futile Fight Against Water Reform*, SACRAMENTO BEE (California), Oct. 9, 1992, at A30.

other western states as a consequence.<sup>87</sup>

Congress could pass a trailer bill. Some people advocate transferring the CVP to the State of California. Governor Pete Wilson of California opposed the CVP reforms and successfully blocked a predecessor version of the CVPIA when he was a Senator from California. While he has never stated opposition to fish and wildlife protection, he firmly believes California water allocation decisions should be made in Sacramento, not in Washington. Even after enactment of the CVPIA, Governor Wilson is still pressing for a transfer. He is depending on a Memorandum of Agreement with federal officials setting up a three-year negotiating schedule to work out the transfer.<sup>88</sup> Obviously, any such transfer would have to be approved by Congress. At that time, Congress would have a chance to reconsider the operational changes mandated in 1992.

In addition to uncertainty about further Congressional action, the Department of Interior will have to provide important interpretations of this complex legislation. One critical issue will center on determining the baseline CVP water yield from which the environmental dedication takes place. The CVPIA also requires a massive amount of work on environmental impact statements (EIS)—a programmatic EIS must be prepared by 1995 on the entire implementation of the CVPIA.<sup>89</sup> The San Joaquin River Plan also must comply with National Environmental Policy Act (NEPA) requirements, presumably by way of an EIS.<sup>90</sup> The fate of the CVPIA will be determined by new people, agency rule-makings, arguments and perhaps litigation over the meaning of the statute, and many environmental impact statements.

The most difficult uncertainties and decisions will center around the San Joaquin River, which actually has two dry stretches. As previously mentioned, the first is the stretch of river

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87. See Michael Doyle, *Bush Signs CVP Bill—Growers Lose Plea*, SACRAMENTO BEE (California), Oct. 31, 1992, at A1.

88. U.S. DEP'T OF INTERIOR & STATE OF CALIFORNIA, MEMORANDUM OF AGREEMENT FOR TRANSFERRING TITLE TO THE CENTRAL VALLEY PROJECT FROM THE U.S. DEP'T OF INTERIOR TO THE STATE OF CALIFORNIA (Dec. 14, 1992). Clinton Administration officials have yet to take a position on the agreement.

89. Reclamation Projects Act, Pub. L. No. 102-575, § 3409, 106 Stat. 4601, 4730.

90. See *id.* § 3406(c)(1) 106 Stat. at 4730 (stating that the plan for the San Joaquin River will comply with all NEPA requirements).

located downstream from Gravelly Ford. Another is located between the Mendota Pool and the Merced River, where during certain times of the year, the river is dry as no deliveries are being made to irrigators.

The stretch below Gravelly Ford has been barren of water on a regular basis since 1948. The river bed has vastly changed. Trees, almost forests, have grown in many parts of the river bed. Sand and gravel are being mined. Housing has even been proposed. In Madera County, one proposal calls for housing right in the river bed itself. Some people question whether restoration of this stretch of the river is viable. Others working for the California Department of Fish and Game, have proposed that the department solely concentrate on tributary runs. The salmon runs in the northern part of the San Joaquin River drainage, the Stanislaus, Tuolumne, and Merced Rivers have experienced a very bad period. The 1989, 1990, and 1991 population figures were very poor. In some cases, hundreds of fish returned where populations used to be in the thousands and thousands. As a consequence, some people advocate concentrating work on the tributaries and forgetting about restoration of the mainstem.

#### IX. THE NEED FOR A STRONG CONSTITUENCY AND BOLD THINKING

If Californians want to restore the Central Valley's aquatic environment, a strong constituency is essential. When then-Senator Pete Wilson blocked the CVPIA predecessor in the 101st Congress, CVP reform measures lacked a constituency. The legislation had been drafted by Congressman George Miller and Senator Bill Bradley in Washington D.C. Miller's interest is understandable; he represents Contra Costa County, right in the San Francisco Bay Area. In that part of California, many people have never supported projects to export water to the south. Miller was joined by Senator Bradley, one of the few Easterners ever to take an interest in Western water projects and the details of reclamation law.

Last year, word came out that CVP reform would not pass unless it was supported by a substantial grassroots campaign. Bay Area environmental interests assembled an effort to create visibility for CVP reform. They formed a group rather pallidly called the Coalition for Federal Water Reform. Later, the name was



changed to Share the Water. With the idea that water generated by the CVP mainly for irrigation should be shared more extensively with fish and wildlife and with other users, the coalition tried to gain the support of municipalities. At first, the legislation contained a provision to allow up to 100,000 acre-feet of uncommitted yield to be available to cities.<sup>91</sup> While Congress eventually omitted this, the final version did contain transfer provisions which allow irrigation districts and individuals within the CVP service area to enter into water marketing transactions with urban districts.<sup>92</sup> These two provisions successfully gained urban political support.

If the San Joaquin River is to be restored, an even stronger political constituency must be built. The Mono Lake Committee might be the most appropriate model for such a coalition. Students of water law know about the National Audubon Society lawsuit over what the Los Angeles Department of Water and Power has done in the Mono Lake Basin.<sup>93</sup> The Mono Lake case brought the public trust doctrine into play in the water rights arena. Some recent interpretations of fish protection provisions in the Fish and Game Code also have been very helpful in getting flows back into the creeks which feed the lake.<sup>94</sup>

It was quite dramatic to see that during the last portion of the recent prolonged drought in California, the largest and most politically powerful city in the state took none of the water to which it has rights in the Mono Basin. Los Angeles had to forego this water not only due to the work of lawyers, but also because of a major effort by citizen organizations to create political visibility for the Mono Lake problem. The Mono Lake grew out of research done by science students in 1976.<sup>95</sup> Now, the Mono Lake Commit-

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91. S. 484, 102d Cong., 1st Sess. § 4(b) (1991), *reprinted in CVP Hearings*, *supra* note 66, at 10.

92. *Id.* § 5(a) *reprinted in CVP Hearings*, *supra* note 66, at 12. Transfer provisions are included in the adopted version as well. See Reclamation Projects Act, Pub. L. No. 102-575, § 3405, 106 Stat. at 4709.

93. National Audubon Soc'y v. Superior Court of Alpine County, 658 P.2d 709, *cert. denied*, 464 U.S. 977 (1983).

94. California Trout, Inc. v. State Water Resources Control Bd., 255 Cal. Rptr. 184 (1989); California Trout, Inc. v. Superior Court, 266 Cal. Rptr. 788 (1990).

95. Sally Gains, *Way Back — The First 10 Years: From Creamed Tuna to the Supreme Court*, MONO LAKE NEWSLETTER (Mono Lake Committee, California), Winter 1989, at 4; INSTITUTE OF ECOLOGY, UNIVERSITY OF CALIFORNIA AT DAVIS,

tee has 20,000 members, an annual budget of one million dollars, and a visitor center at the lake. Calendars with lovely pictures of the tufa towers in the Mono basin, T-shirts, and bumper stickers create political visibility, which ultimately is very important to judicial rulings and implementation. Comparable activities are just getting started on the San Joaquin River. A local group, for instance, is working on a parkway. The group is not advocating increased flows, however, because the issue is too hot politically.

A strong citizens' movement must be formed in order to ensure effective implementation of CVP reforms. Advocates must be creative because they are going to have to think about multipurpose solutions. Marc Reisner is currently doing some interesting work in that vein with regard to rice property in the Sacramento Valley. In his book, *Cadillac Desert*, Reisner targeted rice as one of the "big four" heavily irrigated low-value crops in California.<sup>96</sup> Reisner argued that devoting up to 600,000 acres to rice, a monsoon crop, was ludicrous in an arid region. But Reisner has changed his mind; he now says that riceland can be used for multiple purposes. Hardpan lands have very little drainage, so they can be used for rice and for waterfowl habitat and water storage throughout the winter.<sup>97</sup> The riceland can hold up to 600,000 acre-feet in water storage you get without building a dam. Reisner's thinking is creative, although potential problems exist such as rice herbicide contamination.<sup>98</sup> The endangered winter-run chinook in the Sacramento River may also need some of the water that would be dedicated to winter flooding of rice stubble. While these problems must be worked out, similar creative think-

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PUBLICATION No. 12, AN ECOLOGICAL STUDY OF MONO LAKE, CALIFORNIA (David W. Winkler ed., 1977).

96. See REISNER, *supra* note 4. Cotton, alfalfa, and irrigated pasture were the other three. *Id.*

97. See Marc Reisner, *Coming Together on Ricelands, Wetlands and Fisheries*, in 4 BAY ON TRIAL, Summer/Fall 1992, at 6-7. See also ELIZABETH ANDREWS ET AL., PHILLIP WILLIAMS AND ASSOCS., No. 817, AN ASSESSMENT OF THE FEASIBILITY OF INTEGRATING WETLAND MANAGEMENT, WATER STORAGE AND RICE FARMING IN THE SACRAMENTO VALLEY FOR THE NATURE CONSERVANCY (1992). Winter flooding of riceland may decompose rice stubble, which in the past was burned, causing considerable air pollution. Under recent legislation, such burning is mostly to be terminated by the end of the century. CAL. HEALTH & SAFETY CODE, § 41865-66 (West Supp. 1993).

98. Felix E. Smith, *Rice Culture, Stubble Decomposition/Seasonal Wetlands and Water Storage* (1993) (on file with author).

ing is necessary if the San Joaquin River is ever to be restored.

Solutions will have to be bold. Despite claims in irrigators' press releases opposing the legislation, the CVPIA changes are really quite modest from the farmers' point of view. At most, irrigators will only lose fifteen percent of their current CVP yield. Even with this cut, however, salmon population goals may not be achieved. Solutions should reflect the boldness of a Marshall Plan with a substituted ethic, such as safe-yield or stewardship. Environmental restoration, increased water flows, and doubled anadromous fish runs may ultimately require a major downsizing of irrigated agriculture in the Central Valley. General Motors is downsizing. The University of California is downsizing. Why not irrigated agriculture?

In 1978, the idea of taking agricultural land out of production would kill any suggestion for improved water management. In 1990, however, a large multi-agency report on the drainage problem in the San Joaquin Valley, which cost federal taxpayers fifty million dollars, cited land retirement as one of the options to deal with drainage problems.<sup>99</sup> The drafters were only talking about a modest amount of the most contaminated problem land being retired from irrigation,<sup>100</sup> but maybe Californians will need to move beyond that. The CVPIA makes reference to using some of the restoration fund money for land retirement. The stated purposes of land retirement go beyond drainage problems. The statute refers to using restoration fund money to retire land for improved water conservation, presumably using that term in the modern sense.<sup>101</sup>

## X. CONCLUSION

The CVPIA may provide a beginning for genuinely readdressing the severe environmental problems caused by the CVP. Downsizing of irrigated agriculture in the Central Valley may occur due to economics, salt intrusion, or deliberate government

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99. MANAGEMENT PLAN, *supra* note 29.

100. *Id.* at 103. See also San Joaquin Valley Drainage Relief Act of 1992, S.B. 1669, which provides a state legislative basis for implementation of the land retirement provisions of the San Joaquin Valley Drainage Program's management plan.

101. See Reclamation Projects Act, Pub. L. No. 102-575, §§ 3408(h)-(j), 106 Stat. 4729-30.

policy, where land is acquired and taken out of production and the water is used for other purposes. During this challenging time in California, comparable developments are unfolding in other places in the West. Westerners are abandoning that old ethic about putting every drop of water to work. They are abandoning the notion that fresh water going to the ocean is a waste. Californians are moving toward safe yield ideas. A dramatic step in this process occurred with the mandate for integration of the public trust doctrine and water rights law in 1983.<sup>102</sup> Now, in 1993, California has the CVPIA.<sup>103</sup> The rest of the West has not so far shown great interest in the public trust doctrine as applied to water rights, but more interest in reforming existing water projects may follow the enactment of the CVPIA. If so, environmental restoration may improve federal water projects throughout the West.

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102. *National Audubon Soc'y v. Superior Court of Alpine County*, 658 P.2d 709, *cert. denied*, 464 U.S. 977 (1983).

103. Reclamation Projects Act, Pub. L. No. 102-575, § 3401, 106 Stat. at 4706.