CALIFORNIA WATER: WILL THERE BE ENOUGH?

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Tension between agricultural interests and environmental interests over water in California has run high in recent decades. A good starting point for this tension would be the late 1960s, when the modern environmental movement emerged and confronted water development activity which had been in high gear for over thirty years. Huge federal water projects had been built to supplement hundreds of local and regional water projects. By the late 1960s, the federal Central Valley Project (CVP) had been through two distinct phases: first, construction of water facilities in the Sacramento Valley and the San Joaquin Valley to supply irrigation and some non-irrigation water to users in those valleys and in the East Bay. Second, construction of more such facilities on the North Coast and on the American River to augment supplies and in the San Joaquin Valley for storage.[1] That second phase permitted a great expansion of irrigated agriculture on the west side of the San Joaquin Valley, in areas many pass through in traveling on Interstate 5 between Sacramento and Southern California.

The State of California, which had planned most of what became the CVP but which lost control of the CVP to the United States in 1935 — more specifically to the federal Bureau of Reclamation in 1937 — developed its own Sacramento Valley water facilities in the 1960s.[2] Although much of the state water was destined for urban use in Southern California, a considerable portion was earmarked for irrigated agriculture, particularly in Kern County. The state, like the Bureau of Reclamation, planned to augment supply with facilities on the North Coast. First on the list was Dos Rios Dam on the middle fork of the Eel River, but by 1969 a coalition consisting of environmentalists, a Native American tribe and ranchers in the Dos Rios area was in fierce opposition. That coalition won its fight.[3] Governor Ronald Reagan put the project proposal on the back burner, and by 1972 most of the Eel River, as well as most of the Klamath and Smith river systems further north, had been placed in a

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1 NORRIS HUNDLEY, JR., The Great Thirst 234-276 (Rev. Ed. 2001). Hundley's volume is the most comprehensive and thoughtful history of water in California in existence. *Id.*

2 *Id.* at 276-302.

3 Harrison C. Dunning, "*Dam Fights and Water Policy in California: 1969-1989*," 20 JOURNAL OF THE WEST (Number 3) (1990) 15-19; Ted Simon, *The River Stops Here* (1994).

new California Wild and Scenic Rivers system.[4] That system precludes most water development.[5]

Since the Dos Rios battle, almost every major water development proposal in California has faced intense opposition from environmental organizations. Some projects, including a large CVP dam on the Stanislaus River and a smaller Corps of Engineers dam on Dry Creek in Sonoma County, have been built, despite such opposition.[6] But both a large CVP dam proposed for the American River and a large conveyance facility proposed for the Sacramento-San Joaquin Delta have to date been stalled, in part because of environmental opposition.[7]

Aside from battles in the last thirty-plus years over building new water development facilities, there have been fierce confrontations over the operation of existing water facilities. The most celebrated of these had to do with the operation of facilities in the Mono Basin owned by Los Angeles, where environmentalists faced a powerful city rather than agriculture.[8] But agriculture has been involved in other operational conflicts, such as that over modifying Delta pumping operations to comply with the federal environmental requirements.[9] Modifications in Delta operations have led some in California in speak, often bitterly, of a "regulatory drought" as damaging to them as any hydrological drought has been. Another major conflict has been over the operations of Friant Dam, a CVP facility on the San Joaquin River, where environmentalists have sought in federal court to obtain releases of water for fish to reinhabit areas downstream of Friant. Those areas, particularly a 22 mile stretch below Friant, have been largely dried up by diversions to the

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[4] Pub. Res. Code, Section 5093.50 et seq. Many of the North Coast river segments included in the California system subsequently were also designated as part of the federal system established by the National Wild and Scenic Rivers Act of 1968, 16 U.S.C.A Sections 1271-87. *Del Norte County v. United States*, 732 F.2d 1462 (9th Cir. 1984), describes some dramatic legal history regarding the federal designations.

[5] *Id.* at 5093-55.

[6] Dunning, *supra* note 3 at 21-23 (New Melones Dam on the Stanislaus River); Joe Bain, Richard E. Caves and Julius Margolis, *Northern California's Water Industry* (1966) 492 (Warm Springs Dam, on a tributary of the Russian River, then scheduled for completion in 1969; but controversy over that dam contributed to its completion only in 1983. *See* www.parks.sonoma.net/laktals.html (consulted April 12, 2002)).

[7] Hundley, *supra* note 1 at 384-85 (Auburn Dam on the American River); *Id.*at 313-314 (Peripheral Canal in the vicinity of the Sacramento-San Joaquin Delta).

[8] The Mono Basin story through 1995 is very well told in John Hart, *Storm Over Mono* (1996).

[9] Some sense of environmental and other problems in the Delta, often viewed as the "hub" of California's water system, as well as the current approach to correcting them, can be found in CALFED Bay-Delta Program, *Annual Report 2001*. The massive CALFED Bay-Delta Program, which involves more than twenty state and federal agencies, published its Programmatic Environmental Impact Statement/Report on July 21, 2000, and a Record of Decision on August 28, 2000. *Id.* at 74.

north and to the south of the dam for agriculture.[10] There, some of the litigants have been working for the past several years on a settlement which would restore the river in a way acceptable to all sides.

In light of all this conflict over whether to build new water facilities and over how to operate the huge number we have — well over a thousand dams in this state are large enough to require state safety inspections — the water future for California could seem extremely grim. California's Department of Water Resources (DWR) conveys a pessimistic view, for example, in its periodic updates of the California Water Plan. The latest completed update projects that by the year 2020 there will be water shortages of 2.4 million acre-feet (maf) in an average water year and 6.2 maf in a drought year.[11] That latter figure is about six times the amount of water in a full Folsom Lake. To put that number in context, in an average year California gets about 200 maf of water through precipitation, of which about two-thirds is consumed through evaporation and transpiration by local vegetation.[12] Only a third becomes "runoff," i.e. water in rivers and wetlands.[13] If we include water imported from the Klamath and Colorado Rivers, DWR says we have about 78 maf of runoff,[14] so the shortage projected for 2020 in a drought year is about 8% of the average runoff. Serious, but, I would say, not overwhelming.

In my opinion, whatever happens in the future, large urban centers, with their enormous electoral power, will be served. So the conflict is reduced to irrigated agriculture on the one hand and environmental protection and restoration on the other. Both have great importance. California has been the nation's leading agricultural state for over fifty consecutive years, and it produces over half of the country's fruits, nuts and vegetables.[15] For some crops — for example, walnuts, olives, kiwi and artichokes — California is the primary producer in the U.S.[16] Still, according to work published by the University of California Agricultural Issues Center, even with processing and multiplier effects included, California agriculture makes up only about 6% to 7% of California's trillion-

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10 *Natural Resources Defense Council v. Houston*, 146 F.3d. 1118 (1998).

11 Department of Water Resources, *The California Water Plan Update* (Bulletin 160-98, 1998) 10-2. One acre-foot is 325,851 gallons of water.

12 *Id.* at 3-1.

13 *Id.* at 3-1 and 3-2.

14 *Id.* at 3-2.

15 *Id.* at 1-4.

16 *Id.*

dollar plus economy.[17] It is a significant, but not a leading, part of that economy.[18]

Environmental protection is also of great importance in California. Travel and tourism is a major sector of the State's economy, with about the same contribution to the gross state product as agriculture. Water is important to travel and tourism — thousands are attracted annually to California's lakes and rivers. Environmental protection and restoration also, of course, provide important benefits for public health, biodiversity and long-term ecosystem integrity.

In the concluding portion of this article, I want to make two suggestions as to how future conflict between agricultural interests and environmental interests can be eased, if not eliminated. Looking ahead is, of course, always risky. I am reminded in that respect of a book on water in California published in 1960.[19] The author was a consulting engineer named S.T. Harding. Harding had spent his career focusing on aspects of California water, beginning in 1911 when he worked on an inventory of water supply possibilities and irrigable lands made by the U.S. Department of Agriculture in cooperation with California's Conservation Commission.[20] In the last chapter of his book, Harding looked to the future. He estimated the mean annual water supply available for development and use in California at about 77 maf[21] — very close to DWR's 1998 figure of 78 maf. His discussion centered on various proposed units of the State Water Project, then known as the Feather River Project. The financing for that project was approved later in 1960 by an exceedingly narrow margin.[22] Harding referred in passing to greatly increased opportunities for conflict arising from a multiplicity of claims, and in particular he noted that "[t]he most lusty of the claimants to the use of water are the

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17 Nicolai V. Kuminoff, Daniel A Sumner and George Goldman, *The Measure of California Agriculture – 2000* (2000) 103. The statistic varies depending upon whether sales, income, value added or number of jobs is being tabulated. *Id.* at 104.

18 According to 1999 statistics from the U.S. Department of Commerce Bureau of Economic Analysis, agriculture's contribution to California's gross state product falls below sectors such as services, F.I.R.E. (finance, insurance and real estate), manufacturing, government, retail trade and transportation. *See* www.bea.doc.gov/bea/regional/gsp/action.cfm (consulted March 18, 2002). California agriculture is, however, fifth among the state's major export industries, coming after electronics, computers, aerospace and instruments. CALFACTS – California's Economy and Budget in Perspective, found at www.lao.ca.gov/2000_reports/calfacts/2000_calfacts_economy_part1.html (consulted March 27, 2002). I am grateful to Peg Durkin, reference librarian extraordinaire at the UC Davis School of Law, for gathering these statistics.

19 S.T. Harding, *Water in California* (1960).

20 *Id.* at iii.

21 *Id.* at 210.

22 The margin of victory for the bonds was only three-tenths of one percent. Hundley, *supra* n.1 at 290.

advocates of fish and wild life and of recreation."[23] Although Harding supported "[a] reasonable balance" among all uses of water, he also opined that a general interest in recreation should not be the basis for preventing "productive" uses of water.[24] What he clearly did not foresee and perhaps could not have foreseen was that by 1998 DWR would determine that in an average year about 37 maf of the 78 maf of runoff are committed to the environment.[25] The bulk of this is in dedicated flows in federal and state wild and scenic river systems, most of them on North Coast rivers — water that San Joaquin Valley irrigators, overdrafting their groundwater basins, once coveted as a supplemental surface supply. Those systems were not initiated until 1968 and 1972, respectively. The rest of the environmental water is Bay-Delta outflow required by the State Water Resources Control Board, other instream flow requirements and the water needs of managed freshwater wildlife areas.[26]

So S. T. Harding in 1960 failed to foresee the impact the modern environmental movement has had on the allocation of water resources in California in recent decades. I am fully aware I also may be failing to anticipate one or more major developments. But the two ideas I want to discuss are really ideas that have their origins in the 1950s, although they have had very little implementation to date.

One idea has to do with the Imperial Valley, an amazing corner of California desert tucked in by our border with Mexico. Water brought from the Colorado River to that valley is managed by the Imperial Irrigation District (IID),[27] which acts on behalf of less than a thousand farmers. Irrigated agriculture goes on 365 days a year within IID's boundaries. In 1996 IID delivered over 2.8 maf of water,[28] making it by far California's largest water retailer. That 2.8-plus maf was about double the 1.4-plus maf that Westlands delivered in its highest delivery year, 1984.[29] It is a huge amount of water, rights to which were acquired early on and protected in all the complex arrangements made in the twentieth century to allocate Colorado River water. These rights are in fact the "Mother Lode" of California water rights.

Back in the 1950s the chairman of the board of the Metropolitan Water District of Southern California (MWD), the giant wholesaler of over half the water used in the urban areas of Southern California, thought MWD's needs for water beyond its original Colorado River allocation could be satisfied from IID's allocation. But instead of seeking to

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23 *Supra* n.15 at 223.
24 *Id.*
25 Department of Water Resources, *supra* n. 11 at 4-51.
26 *Id.* at 4-34.
27 William L. Kahrl (ed), *The California Water Atlas* (1978) 39.
28 Department of Water Resources, *supra* n. 11 at 1-6.
29 *Id.*

do that, presumably by purchase, MWD supported the Feather River Project in the north — first as a project of its own, later as the leading contractor with the state when the Feather River Project became the State Water Project.[30] Unfortunately, it appears the State Water Project may have been the straw that broke the Sacramento-San Joaquin Delta's environmental back. Until the 1960s, fish species dependent on the Delta seem to have fared reasonably well despite significant upstream diversions by a range of users and very large Delta diversions by the CVP. But since the State Water Project diversions were added in the late 1960s, a number of those species have been listed as threatened or endangered.[31]

Since 1982, when expansion of the State Water Project and, in particular, the Peripheral Canal — proposed as a Delta conveyance facility — were defeated by a large margin at the polls,[32] MWD and its member agencies have looked more carefully at local and regional water supply options. A few years ago it negotiated a smallish deal with IID, and currently water agencies in San Diego County are attempting to do the same thing. These deals are for the medium term only, and they assume the urban entities will supply money so that IID can reduce water waste and increase water use efficiency. The water thus conserved is designated for the urban areas, but without fallowing much land in the Imperial Valley. My prediction is that over the decades to come, people will realize the foolishness of devoting nearly 3 maf of water — considerably more than the shortage projected by DWR for 2020 in an average year, and nearly half that projected for a drought year — to low value agricultural uses in the desert, when there are uses for that water in urban areas of far more economic value. Ironically, large sums are now being spent to improve a water delivery system that in the long run may need to be shut down. Of course, any shutting down of that system should happen incrementally, with compensation provided to the farmers and to others, such as farm workers, who depend on it. The future of the Salton Sea, a sump filled early in the twentieth century with floodwater from the Colorado River and sustained by agricultural drainage inflows from IID, is, I recognize, a complicating factor in the Imperial Valley situation.[33]

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[30] Hundley, *supra* n.1 at 291, notes that the MWD board endorsed the State Water Project bonds only four days before the election in 1960.

[31] See note 9 *supra*.

[32] The margin on the referendum was 63% to repeal the legislation and thus defeat the canal proposal and 37% to uphold the legislation.

[33] The Salton Sea has become "a critical link in the Pacific flyway," Jeffrey P. Cohn, "Saving the Salton Sea," 50 BIOSCIENCE 295 (Number 4, 2000), quoting the executive director of the Salton Sea Authority. Cohn calls the sea "one of the most productive ecosystems in North America," *Id.*, both for its bird life and its fish life.

Another idea from the 1950s with considerable potential is desalination. As a coastal state, California has a virtually unlimited supply of seawater available from the Pacific Ocean. The technology is available to turn some of that water into fresh water, but the cost is high. Some processes are energy intensive, and with them seawater desalting costs run from $1,200 to $2,000 per acre foot. Consequently, although California as of 1998 already had over 150 desalting plants, production is low and most such plants desalt brackish groundwater or wastewater only. But new processes for desalination are being tested, which means desalting costs may come down dramatically just as the costs of conventional projects, with onerous environmental requirements to meet, escalate. There are, of course, environmental problems with desalination, particularly regarding the siting of facilities and disposal of the brine created by the process. But, nonetheless, the prospects for future desalination seem good.[34]

A gradual shutdown of farming in the Imperial Valley and far more desalination than at present are not the only hopeful possibilities. Fallowing of toxic soils on the west side of the San Joaquin Valley, dry year option contracts, increased water conservation and conjunctive use projects all have merit. My hope is that ways will be found to sustain our rapidly growing cities and the bulk of our irrigated agriculture without turning back from past, present and future projects for environmental protection and restoration of some of our rivers and lakes.

[34] Recently, the chairman of the board of the San Diego County Water Authority reported that the authority is investing up to $400,000 to study a proposal for a seawater desalination plant that could supply up to ten percent of the region's water. James F. Turner, "The Pacific Ocean as a Source for Water," San Diego Union Tribune (March 20, 2002).