

WATERS OF CHANGE: THE CENTRAL VALLEY PROJECT IMPROVEMENT ACT

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INTRODUCTION

On October 30, 1992, President Bush signed Public Law 102-575, marking the start of a new era in federal water policy in the American West. Title 34 of the bill, the Central Valley Project Improvement Act ("the Act"), is the most significant step ever taken towards the reform of a water project which has been perhaps the single greatest environmental disaster in the history of California. However, the Act is not a traditional environmental bill. It was supported by the vast majority of interests involved in California water issues, including environmentalists, fishing and waterfowl groups, family farming groups, labor unions, ports, most of the largest cities in the state, business leaders, Native Americans, urban water districts, and nearly every major newspaper in the state. The ambitious provisions of the Act and the unprecedented breadth of support for it demonstrate that a fundamental change is taking place in the debate over water policy in the Golden State.

Many Central Valley Project ("CVP" or "the Project") agricultural water users have felt that this change presents a threat to the health of their industry. It would be disingenuous to suggest that this transition will be cost-free. However, a close reading reveals that, in addition to benefitting California's environment and urban economy, the Act was designed to offer unique opportunities to the agricultural industry. Maximizing these opportunities will require an evolution similar to that undergone by other modernizing industries.

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I. THE CVP — THEN AND NOW

The CVP is the nation's largest water project. In an average year, the Project delivers over seven million acre-feet of water, twenty percent of all the water used in the state. Ninety percent of this water is used by irrigated agriculture. As a result of the highly-subsidized price of CVP water, much of it is used on the state's four most water-intensive and low-value crops—pasture, alfalfa, cotton and rice.

The Project was conceived during the Depression to build the state's economy by attracting people to California and by promoting agriculture in the Central Valley. On both accounts, the Project has been an undeniable success. At the time, however, California cities had adequate water supplies and there was little concern for the Project's environmental impacts.

A half century later, California faces dramatically different conditions. The Central Valley has proven to be among the most prosperous agricultural regions in the nation, even during the drought. Drought parched cities, however, have faced real water shortages. And there has been growing public concern regarding the tremendous environmental cost of the Project, and the lack of efforts to restore damaged ecosystems.

Since its inception, the CVP has been operated under a set of policies and priorities designed to meet the needs of California in the 1930's. The Central Valley Project Improvement Act updated those policies and priorities to respond to the different needs of California today.

II. CALIFORNIA'S ENVIRONMENT AND THE CVP

The CVP has most heavily impacted California's rivers and fisheries. When Friant Dam was completed on the San Joaquin River, it caused the extinction of one of the state's largest salmon runs. During most years, the San Joaquin River is dry from Gravelly Ford to the Mendota Pool, and from below the Mendota Pool to its confluence with the Merced River. The San Joaquin's once lush riparian forests and wetlands have been dried up and plowed under. In Fresno, developers are trying to build in the river bed.

On the Trinity River, inadequate river flows have decimated salmon and steelhead fisheries, in violation of treaties with Native Americans.

On the Sacramento River, the damage was longer in coming but the trend is unmistakable. The Sacramento River supports four separate runs of Chinook salmon. All have declined in recent years. One of these, the winter run, is listed as threatened under the Federal Endangered Species Act, having declined from 118,000 spawning fish in 1969,

to 191 in 1991 and 1,180 in 1992.

The collapse of the Sacramento River salmon runs was caused by fluctuating reservoir releases, inadequately screened diversions, massive pumping in the San Joaquin-Sacramento River Delta, and high river temperatures below CVP dams. During the first years of a drought which began in 1987, the CVP made full water deliveries, draining the reservoir behind Shasta Dam. Water in the lowered reservoir was more readily heated by the sun to temperatures lethal to salmon eggs and young salmon downstream. In 1992, for example, the CVP was responsible for killing eighteen percent of winter egg production, twenty-one percent of the fall run, and fifty-two percent of the spring run. The Sacramento River spring run declined to only 600 spawning salmon in 1992, and, if the trend is not reversed, will be another candidate for Endangered Species Act protection.

In the Delta, the combination of the federal CVP and the State Water Project have caused catastrophic declines in striped bass, the Delta smelt, the Sacramento splittail, and the longfin smelt. All of these, except the stripier which was introduced into San Francisco Bay in 1879, are currently under consideration for Endangered Species Act protection.

In San Francisco Bay, diversions have led to declines in plankton production, shrimp populations and other fisheries. Bay wetlands have also suffered from CVP diversions. As salt water encroaches further into Suisun Bay, unique tidal brackish wetlands habitat is converted to salt marsh. This change threatens the Suisun song sparrow, and waterfowl in Suisun Marsh. Decreased fresh water flows also reduce Bay circulation, and, due to biochemical effects as salinity rises, actually increase the toxicity of some contaminants, particularly in the South Bay.

The CVP has impacted water quality in the Central Valley as well. Water contaminated with pesticides and trace elements like selenium drains from land served by the CVP water on the west side of the San Joaquin Valley. This tainted drainage water caused the toxic disaster at the Kesterson National Wildlife Refuge.

The construction of the CVP also dried up at least 100,000 acres of wetlands which were no longer inundated during winter and spring floods. Central Valley wildlife refuges were created to reduce the impacts on waterfowl and other migratory birds. In dry years, however, when wetland habitat is needed most, these refuges have often been unable to obtain adequate water supplies. The Pixley National Wildlife Refuge in the southern San Joaquin Valley, for example, comprises up to 950 acres of wetlands. But, in recent years the Refuge has only received water adequate to flood as few as fifty acres. Loss of Central

Valley wintering habitat is one of the major causes of precipitous declines in waterfowl populations on the Pacific Flyway.

Had California intended to cause the collapse of the rich ecosystems of Central Valley rivers and wetlands and the Bay-Delta Estuary, to wipe out salmon and other native fisheries, it could not have designed or built a system better suited to the task than the Central Valley Project. Arguably, no other single project of any kind has had such a devastating effect on the state's environment.

The Bureau of Reclamation ("the Bureau"), which operates the CVP, has been unwilling to address or even study impacts of the Project. Without passage of the Act, it was a virtual certainty that violations of the Endangered Species Act, the Clean Water Act, and other laws would have forced the courts to take over many features of Project operation (e.g., carryover storage, instream flows, Delta pumping, and Sacramento River diversions). Just as the Clean Water Act forced heavy industry and municipalities to address water pollution, the Central Valley Project Improvement Act initiates a comprehensive process to address the Project's environmental impacts.

III. CALIFORNIA'S ECONOMY AND WATER REFORM

A. *The Arguments for Reform*

Those who opposed legislation to reform the Project often characterized the controversy as a choice between jobs and fish. However, there was growing evidence that the operation of the CVP had become a threat to the future of the state's economy, as well as its environment.

Beginning in 1987, California experienced an extended period of drought. Some urban areas faced significant water shortages. Many urban water districts realized that one of the least expensive and least environmentally damaging sources of drought supply could come from the CVP. Those CVP farmers willing to conserve water, plant less water-intensive crops or fallow fields temporarily could voluntarily sell the saved water to urban areas. Even modest increases in conservation had potential to yield large benefits in light of agriculture's ninety percent share of CVP water.

Unfortunately, federal law forbade CVP water from being used outside the CVP "service area," an area which excluded parts of the Bay Area and all of Southern California. Southern California water districts united behind a campaign for legislation to change this policy. In recognition that reliable urban water supplies are essential to the future of the state's economy, community business leaders—such as Transamerica, the Bay Area Economic Forum, and the California Bus-

iness Roundtable—also supported reform of the CVP to address urban and environmental needs.

The ports of San Francisco and Oakland must dredge to maintain adequate channel depths. There was concern that harbor dredging might be precluded under the Endangered Species Act as a threat to the endangered winter run salmon. The ports and the two cities recognized that the best solution to their problems was to address the major cause of the salmon's decline. Therefore, labor unions, the ports, and the cities of San Francisco and Oakland joined the fight for CVP reform.

Commercial fishermen have long been the forgotten victims of California water policy. In the past decade, thousands of fishing-related jobs were lost as fisheries declined, caused in large part by the CVP. The economic consequences of these job losses were borne by North Coast fishing communities. The recreational fishing industry also experienced similar impacts. Many rivers have been closed to recreational fishing as anadromous fisheries have declined.

Water policy discussions often revolve around third-party impacts from proposed changes. Yet, the fishing industry and these communities, which do not receive the massive subsidies provided for CVP agriculture, have suffered tremendous uncompensated and often overlooked third-party impacts from operation of the Project.

In short, a compelling case was made by business interests that the CVP was no longer operating in a manner conducive to the best interests of the entire state. During 1992, a remarkable cross section of diverse and often competing California economic interests united to support a strong reform bill.

B. The Arguments Against Reform

There were two primary economic arguments against CVP reform. The first was that the economic impacts of reform on agriculture outweighed the potential benefits to the environment and the fishing industry. This argument failed when urban water users and business leaders argued that the health of the state's troubled urban economy depended on reform. The potential benefits to the urban economy certainly dwarfed the potential impacts on agriculture. One thousand acre-feet of water supports about nine agricultural jobs and economic output valued at less than \$400,000. The same amount of water in the urban economy supports 2,600 jobs and economic production valued at nearly \$400 million. In addition, as I will discuss shortly, arguments regarding potential economic impacts to agriculture from CVP reforms were not credible.

CVP representatives responded with a second argument. Despite potential benefits to urban areas, reform should be rejected because it would damage rural communities. However, if there is an ethical and social imperative to protect rural farming communities despite potentially greater economic benefits from reform, then there is an equal and countervailing imperative to protect fishing communities from the impacts of the larger agricultural economy. Thus, both arguments offered against CVP reform ultimately supported the need for reform.

IV. ENVIRONMENTAL BENEFITS OF THE ACT

The environmental provisions of the Act are far reaching and have often been misunderstood. This article will not repeat the overview of the Act provided in Professor Noll's article. Rather, it will focus on the rationale behind the Act's provisions and the results which they are intended to achieve.

The Act contains a variety of provisions, from broad policy to specific actions, designed to restore healthy fish and wildlife populations and the habitat upon which they depend. At the broadest policy level, the Act establishes fish and wildlife protection as a Project purpose. For years, the Bureau claimed it lacked authority to take actions which would restore natural resources destroyed by the CVP. By providing explicit policy guidance, Congress has moved to eliminate this resistance. Similar fish and wildlife project purpose language can be found in virtually every other water project throughout the West.

The most controversial provision of the Act is the dedication of 800,000 acre-feet of "up front water" for fish and wildlife purposes. In essence, the Act made the U.S. Fish and Wildlife Service ("the Service"), and the natural resources which it is charged with protecting, project beneficiaries. In dry years, the environmental water may be reduced, by up to 200,000 acre-feet, at the same rate as deliveries to water contractors are reduced.

The environmental water will be used to implement a plan, to be developed by the Service, to double by the year 2002 natural production of Central Valley anadromous fisheries over 1967-1991 levels. Even though this goal reflects state policy, it falls far short of approaching the anadromous fishery that existed prior to the CVP. The amount of water was chosen as a fair contribution from the CVP and was based on state and federal studies regarding flows necessary to restore the fisheries in Central Valley rivers and the Bay-Delta Estuary.

In preparing the doubling plan, the Service will certainly seek to address problems related to Delta and endangered species. To the

"greatest degree practicable," the 800,000 acre-feet will be used to meet standards set by the State Water Resources Control Board to protect water quality in the Bay-Delta Estuary and endangered species. However, the doubling plan may require some of this water to be dedicated to meet other needs (e.g., spawning on Sacramento or San Joaquin tributaries). Therefore, the Project may be required to provide additional environmental water to meet Endangered Species Act and SWRCB requirements.

The Act mandates over twenty "hardware" fixes, structural improvements to CVP facilities designed to benefit fisheries without additional water (e.g., improved fish screens and hatcheries, spawning gravel replenishment, and a temperature curtain for Shasta Dam). A variety of cost sharing arrangements provide for significant non-CVP funding for these projects from both the state and federal governments. These cost sharing ratios were intended both to lessen the burden on CVP contractors and to reflect the fact that these structural fixes will address problems to which other water projects have contributed.

The Act creates a Restoration Fund to accomplish environmental mitigation and restoration. Parties who benefit from the CVP, including power users, contribute to the Fund. The Fund is designed to help offset the costs of structural improvements to CVP facilities and to purchase additional water from willing sellers, as needed for fish and wildlife. The Restoration Fund thereby uses market mechanisms to acquire additional environmental water in an efficient manner, with no involuntary reallocation. The charges for this Fund still fall far short of recapturing the enormous federal water subsidies received by CVP agricultural users.

The water supplies guaranteed to wildlife refuges are simply designed to offset the impacts of the CVP on Central Valley wetlands. The provision guaranteeing refuge supplies also allows deliveries to be reduced by up to twenty-five percent in times of drought at the same rate as deliveries to agricultural service contractors are reduced.

The Trinity River provision guaranteeing release of a minimum of 340,000 acre-feet into the river codifies an existing order of the Secretary of Interior. It does not, therefore, represent a loss of water to CVP users.

The Act requires a comprehensive study to evaluate options to restore fish, wildlife, and riparian habitat on the San Joaquin River, including salmon runs to the upper San Joaquin River. However, the plan may not be implemented without express authority of Congress. Until water is provided adequate to restore anadromous fisheries below Friant Dam, the Act requires Friant water users to contribute addi-

tional funds (from \$4 to \$7 per acre-foot) into the Restoration Fund. This "in lieu fee" reflects the fact that Friant water contractors are not required to contribute up front environmental water, unlike other CVP water users.

Finally, the Act requires an Environmental Impact Statement ("EIS") addressing the impacts of the Project and the renewal of water contracts. Interim contracts are allowed until the EIS is completed, at which time long-term contracts can be renewed subject to findings of the EIS. This document will be the first comprehensive analysis of the environmental impacts of the largest water project in the nation.

The Act places much of the responsibility for implementation in the hands of the Secretary of Interior, rather than solely with the Bureau. This approach reflects the need for increased cooperation between the Fish and Wildlife Service, which will lead the implementation effort in many areas, and the Bureau, which will continue to operate the Project.

The environmental measures in the Act are ambitious, but appropriate, requirements. The Act does not require the CVP to redress all problems faced by Central Valley and Bay-Delta Estuary ecosystems. Rather, it is designed to require all CVP beneficiaries to contribute their fair share towards mitigating the Project's impacts.

V. HOW AGRICULTURE BENEFITS FROM REFORM

I believe opponents of the Act have overstated potential harmful impacts and underestimated potential benefits to the agricultural economy. For example, the California Department of Food and Agriculture in official statements and the Bureau of Reclamation in unofficial statements, predicted dire economic consequences for agriculture from reforms advocated by Congressman George Miller and Senator Bill Bradley. However, economic modeling by the University of California revealed that these predictions were grossly inaccurate. The University's California Agricultural Resources Management model estimated that dedicating 1.5 million acre-feet of CVP water to fish and wildlife (nearly twice the amount dedicated in the final bill), would impact approximately 1.5 percent of the state's agricultural economy. Even this estimate ignored a number of significant benefits to agriculture included in the final bill.

Most important, the Act allows CVP growers to sell water on the open market anywhere within California, with limited regulation from water districts. The water transfer provisions provide protection against third party impacts on local communities by requiring certain findings

be made before approval. Water transfers will increase profitability and flexibility for individual farmers, and present incentives to finance improved irrigation, drainage reduction programs, crop changes or other conservation measures. The Act also contains provisions to avoid third party impacts to the environment. CVP transfers are also subject to state law provisions addressing these potential impacts.

The Act represents a compromise on many issues important to the environmental community. For example, the environmental community sought dedication of 1.5 million acre-feet of Project water for environmental purposes, restoration of the San Joaquin River, and recognition of pre-CVP environmental uses as senior water rights. In each of these areas, Congress chose to balance these requests with concerns from agriculture.

The Act also includes a number of additional provisions specifically designed to protect agriculture. These include area of origin protection and supports for growers whose crops provide substantial waterfowl benefits. The Act mandates long-term planning to increase the yield of the Project to benefit all project purposes, including agriculture. It also guarantees twenty-five year renewals of expiring CVP water contracts, thus addressing one of the major concerns expressed by contractors in recent years.

Even the environmental restoration measures will strengthen agriculture in the long-term. During the first several years of the drought, the Bureau drained CVP reservoirs, selling water while natural resources collapsed. The Bureau gambled that the drought would not last and the environmental piper would not have to be paid. Their miscalculation harmed agriculture in two ways. First, draining the reservoirs early in the drought created a boom and bust cycle, which is painful for any industry. The Bureau's mismanagement encouraged water use on low-value crops during the early years of the drought and made it difficult to keep high-value and permanent crops in production in the later years.

Second, the Bureau's mismanagement created an environmental crisis which could yet lead the courts to take over operation of the Project. Court intervention is certainly not in the best interests of agriculture. Nor is such intervention the preferred approach of environmentalists. Beginning restoration actions now will result in less reallocation of water to the environment later. When implemented, the management reforms in the Act will lessen these threats to agriculture. Restoring a healthy environment will provide agriculture with greater certainty and more reliable water supplies. The final result will be a modernized, healthier agricultural economy.

VI. THE FUTURE: RESPONDING TO CHANGE

Whatever one's perspective, the Central Valley Project Improvement Act undeniably offers new opportunities and challenges for all interests. The urban sector must address uncontrolled growth to protect itself, the environment, and agriculture. Public agencies and the environmental community must learn to use the tools provided by the Act to effectively restore damaged natural resources.

In the next several years, Central Valley agriculture will look to increase supply through innovative and more efficient water management practices. This Act is only one factor leading to these changes in agriculture. Even without the Act, it was inevitable that additional water would be dedicated to repair environmental damage caused by the CVP. Federal crop and water subsidies will also certainly decline in the future. There are no inexpensive water development projects left to be built in California. Most agricultural water users could not afford water from proposed new projects if required to pay full cost.

How can California agriculture respond to the changes signalled by the Act? The industry may follow the model of the energy industry. Twenty years ago, the energy industry faced a highly-publicized energy shortage. New sources were few and expensive. Projected increases in demand threatened to exhaust existing supply. The problems faced by the energy industry then parallel the problems faced by agriculture today.

Over the past twenty years, the energy industry has changed dramatically. The industry has accepted the "radical" position of the environmental community, that conservation is one of the best sources of new energy supplies. The industry has found that innovative conservation techniques are cost-effective and environmentally beneficial. By expanding markets for energy, by using rebates, pricing incentives and other conservation techniques, the industry transformed and strengthened itself. The next two decades will see a similar transformation in California agriculture.

The fight over passage of the Act will now turn to its implementation. The final benefits of legislation of this magnitude will not be felt for years or even decades. During the coming years, the environmental community will work to guarantee that the reforms contained in the Act are implemented fairly. Within the agricultural community, the approach is not as clear. Some have stated that they will fight implementation.

Policy logjams cannot last forever. Policies governing the CVP had not changed in fifty years, despite dramatic changes in the needs of

California. Eventually, the pressure to address environmental problems and urban water needs became irresistible. Over the next several years, competing interests must learn to cooperate in adapting the Central Valley Project to serve all of the state—the environment, urban residents, business, and agriculture.