
**Economic Impacts of the December 15, 1993
Proposed Federal Action on
San Joaquin Valley Agriculture**

Highlights of the Economic Impacts

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Introduction

December 15, 1993 Federal Action

- ◆ On December 15, 1993, a joint proposal was made by the Environmental Protection Agency (EPA), the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFW), and the Bureau of Reclamation (BOR) for measures to improve environmental conditions in San Francisco Bay, the Sacramento/San Joaquin Delta, and their tributary areas. The measures identified by the joint agency group, known as "Club Fed," included operational requirements under the Endangered Species Act for both the delta smelt and the winter-run chinook salmon, along with water quality standards proposed by the Environmental Protection Agency under the U.S. Clean Water Act.
- ◆ If the joint federal action is fully implemented, significant reductions in State Water Project (SWP) and federal Central Valley Project (CVP) deliveries to water users throughout California would result.

Purpose of the Study

- ◆ Club Fed prepared a *Draft Regulatory Impact Assessment* (RIA) to estimate the economic impacts of the proposed action on San Joaquin Valley agriculture under three alternative implementation scenarios. Although the scenarios were purportedly designed to show various degrees of impact on the agricultural sector, they unrealistically assumed adjustments within the industry. Consequently, the RIA analysis significantly underestimates the potential impact of the proposed action on San Joaquin Valley agriculture and provides little guidance to policy makers in assessing the cost-effectiveness of alternative implementation strategies.

- ◆ Since the federal government RIA was insufficient to properly analyze the effects of the proposed Club Fed action, the Kern County Water Agency (KCWA) requested Northwest Economic Associates (NEA) to conduct an economic impact study to quantify the economic effects of the December 15, 1993 proposed Club Fed action.^{1/} The study quantifies :
 1. The on-farm and off-farm (third-party) economic impacts of the proposed action in the federal Central Valley Project (CVP) and the California State Water Project (SWP) service areas;
 2. Irrigated acreage that would be idled as well as acreage that would remain in production but would face increased water shortages and losses in agricultural production;
 3. Changes in the value of crops produced, income received (producers wages and profits and farm worker wages and salaries), and jobs;
 4. Impacts on the costs paid by agricultural producers for surface water and groundwater, and associated income losses.

NEA Study Components

- ◆ To determine how valley farmers would react to the Club Fed action, NEA met with growers and districts. Based on these reviews, the following characteristics and issues were found to be important.
- ◆ Wide diversity in the production of irrigated crops and the characteristics of irrigation districts exists throughout the San Joaquin Valley. Many of these growers and districts are operating with very low economic margins. As the level of water shortage increases, growers have limited options:
 1. Permanently idle some lands because of lack of water;
 2. Idle lands yearly, subject to water availability;
 3. Replace "shortage water" with other supplies;

^{1/} *Economic Impacts of the December 15, 1993 Proposed Federal Action on San Joaquin Valley Agriculture* prepared by Northwest Economic Associates, Vancouver, Washington, March 1994. A critical review of the *Draft Regulatory Impact Assessment*, December 15, 1993 is presented in that document.

4. Attempt to conserve water and energy by implementing more efficient farm practices.
- ◆ The ability of growers to remain in production and the extent of land idling depends on:
 1. Cropping options and rotation requirements;
 2. Grower production costs and commodity markets;
 3. The frequency and magnitude of water shortages;
 4. The availability and costs for substitute surface water;
 5. The availability and costs for substitute groundwater;
 6. The amount of fixed costs associated with irrigated agriculture;
 7. The debt-load of growers and irrigation districts;
 8. The ability to secure operating loans with the increased risk and uncertainty of irrigation water supplies.
 - ◆ The proposed federal action, if fully implemented, would restrict the quantity of water going to agriculture and increase the frequency of severe water shortages. This would impact the valley economies by:
 1. Causing agricultural lands to be idled forever;
 2. Restricting production on lands that remain in production;
 3. Forcing a substitution of groundwater for surface water not received because of shortages;
 4. Increasing groundwater pumping lifts and energy costs for all growers over a common groundwater basin;
 5. Increasing purchases of emergency water in dry years to keep high-value perennial crops alive;
 6. Reducing the level of economic output and income of the valley communities;
 7. Causing the permanent loss of jobs.

SWP Service Area

Agricultural Water Supplies

- ◆ The proposed federal water quality standards and operational requirements, as presented by Club Fed on December 15, 1993, would, if fully implemented, cause a permanent water shortage to farmers in the SWP service area. Both the magnitude and frequency of shortages would increase significantly when compared to those which have historically occurred and would continue to occur under existing state regulatory requirements (hereafter referred to as "state requirements") for the Delta.
 1. On a long-term average basis, SWP water supply delivered to farmers would decrease from 77% of what they are contractually entitled to receive to 67% under the proposed federal action.
 2. The frequency of significant shortage would increase dramatically. Under current state requirements, growers can expect at least a 40% shortage every 2½ years out of 10. The proposed federal action increases the frequency of this shortage to every 4½ years out of 10.

Economic Impacts Under State Requirements

- ◆ The SWP service area economy already faces significant economic impacts from an unreliable water supply. The SWP supply is unreliable primarily because the state has not completed the project, and current state requirements reduce water supply deliveries to SWP water users. As a result, SWP growers are already experiencing agricultural production losses and increased water costs due to the unreliable SWP water supplies.

Production-Related Impacts

- ◆ Even without implementation of the Club Fed proposal, over 40,000 acres of land will be idled in the westside service areas of Kern County where alternative water supplies to replace deficient SWP deliveries are not available.
 1. Lost farm output on the idled lands is valued at \$54.7 million annually. Additional support industry output losses are valued at \$89.1 million for total annual economic output losses of \$143.8 million.
 2. Personal income losses measure \$78.6 million annually in the SWP service area, including losses of \$24.8 million on-farm and \$53.8 million in support industries. Personal income losses are included as a component of the total output losses identified above.
 3. Job losses from idled lands include 800 on-farm and 1,800 in related support industries for a total loss of 2,600.

- ◆ 160,000 acres of land in the westside areas will remain in production but continue to face water shortages. When less than full contractual SWP entitlement is received, some lands will be temporarily idled, resulting in annual production losses and related economic impacts.
 1. The average annual value of lost farm output on those lands is \$7.8 million. Additional support industry output losses are valued at \$10.3 million for total economic output losses of \$18.1 million.
 2. Personal income losses measure \$9.3 million annually, including losses of \$3.4 million on-farm and \$5.9 million in support industries.
 3. Job losses from idled lands include 80 on-farm and 270 in support industry for a total loss of 350.

- ◆ Of the lands remaining in production, 70,000 acres are high-value permanent crops. Emergency water purchases are required to keep these crops alive when SWP supplies are not delivered. Average annual income losses to agriculture and support industries as a result of these purchases is valued at \$8.8 million

Impacts Related to Water Costs

- ◆ In SWP service areas that have access to groundwater supplies, the following impacts will occur even without implementation of the Club Fed proposal:
 1. 100,500 acre-feet of groundwater is being substituted for surface water at an annual additional cost of \$6.1 million. These growers are still required to pay annual fixed SWP costs of \$4 million on the SWP water not received;
 2. All growers over the common groundwater basin are facing increased pumping lifts and energy costs of \$2 million annually.

Economic Impacts of the Proposed Federal Action

Production-Related Impacts

- ◆ The impacts summarized above are those that will occur even if the federal proposal is not implemented. Summarized below are the additional impacts that would occur if the federal action is fully implemented.
- ◆ There would be a complete restructuring and further downsizing of agriculture in Kern County during the next 10 years; 45,000 additional acres of cropland, including cotton, vegetables, grains, and alfalfa would be idled.
 1. The annual value of crops produced would decrease by \$50 million, causing an additional \$64 million loss in the output of support industries. This \$114 million production loss in the regional economy would include a loss of 2,200 jobs and a personal income loss \$59 million. These would be permanent reductions in annual economic activity.
 2. This permanent loss of the agricultural base would have a present value of \$1.5 billion in farm and support industry personal income.
- ◆ Under the proposed federal action, the SWP service area would continue to face water shortages even after an additional 45,000 acres of land have been permanently idled. The lands that remain would not be able to farm every year, and emergency water would have to be purchased in critical years to maintain perennial crops.
 1. The average yearly losses to growers from increased temporary idling would be \$4.2 million in agricultural output.

2. The average yearly losses to the support industries from increased temporary idling would be \$5.6 million, for a total loss to the regional economy of \$9.8 million.
3. Income losses to agriculture from increased temporary idling would reach \$1.8 million. Income losses to support industries would be \$3.2 million for a total income loss of \$5.0 million.
4. 200 jobs would be lost.
5. Additional emergency water purchases of \$2.8 million would be required.
6. Total income losses that would result from emergency water purchases, including losses sustained in support industries, would be \$11.3 million.

Impacts Related to Water Costs

- ◆ In addition to the acreage adjustments by growers dependent on surface water imports, farmers over the groundwater basin would also be affected by the proposed federal action.
 1. Annual water costs would increase by \$2.7 million per year as growers find it necessary to shift from surface water to groundwater. The cumulative cost of this increased dependence on groundwater would reach \$68.6 million over the next 50 years (measured in present value terms).
 2. Growers currently pumping from the groundwater basin would experience an accelerated increase in groundwater pumping costs as pump lifts increase. Over the next 50 years, the cumulative value of these costs would be \$49.1 million (measured in present value terms), with an annual equivalent cost of \$1.0 million.
 3. An additional 110 jobs would be lost in these areas because of the decrease in farm income.

Summary of SWP Impacts

- ◆ The proposed federal action would cause the permanent idling of 45,000 acres of agricultural land over the next 10 years. The total economic impacts of the proposed federal action for the permanently idled lands, plus the lands remaining in production but still facing shortages, would be:
 1. The agricultural and support economy of the SWP service area would lose \$124 million worth of yearly output;

2. Personal income in the SWP service area would fall by \$90 million annually;
3. The present value of this lost yearly income would be \$2.3 billion;
4. 2,600 jobs would be lost to the SWP service area economy.

CVP Service Area

Agricultural Water Supplies

- ◆ The December 15, 1993 Club Fed proposal would guarantee a permanent water shortage to 40 water districts served by the Central Valley Project in the San Joaquin Valley. If the federal action is fully implemented, both the magnitude and frequency of shortages would increase significantly when compared to state requirements.
 1. On a long-term average basis, water deliveries to affected CVP growers would decrease from 93% of what they are contractually entitled to receive to 62% under the proposed federal action.
 2. The frequency of significant shortage would increase dramatically. Under current conditions, growers can expect at least a 40% shortage every 1 year out of 10. The proposed federal action would increase the frequency of this shortage to 4 years out of every 10.

Economic Impacts of the Proposed Federal Action

- ◆ The proposed federal action, if implemented, would cause a complete restructuring and downsizing of agriculture in the CVP San Joaquin Valley service area during the next 10 years as production levels decline and water costs increase.

Production-Related Impacts

- ◆ The proposed federal action would, if implemented fully, permanently idle 110,000 acres of agriculture land in the San Joaquin Valley's CVP service area during the next 10 years.
 1. The value of farm output would decrease by \$154 million annually, causing an additional \$185 million loss in the output of support industries. This \$339 million output loss in the regional economy would include a loss of 6,300 jobs and \$185 million in personal income.
 2. This permanent income loss of the agricultural base would have a present value of \$4.6 billion in farm and support industry income.
- ◆ Under the proposed federal action, the remaining agricultural land in the CVP service area would face water shortages even after 110,000 acres of land have been idled. The lands that remain would not be able to farm every year.
 1. The average yearly losses to growers from temporary idling would be \$55.9 million in agricultural output.
 2. The average yearly losses to the support industries from temporary idling would be \$75.6 million, for a total loss to the CVP service area of \$131.5 million.
 3. Income losses to agriculture and its support industries from temporary idling would reach \$61.6 million.

Impacts Related to Water Costs

- ◆ Farmers able to stay in business would also see their water costs increase should the proposed federal action be fully implemented.
 1. Annual water costs would increase by \$1.0 million as growers find it necessary to shift from surface water to groundwater. The cumulative cost of this increased dependence on groundwater would reach \$26.4 million over the next 50 years (measured in present value terms).
 2. Growers currently pumping from the groundwater basin would experience an accelerated increase in groundwater pumping costs as pump lifts increase. Over the next 50 years, the cumulative value of these costs would reach \$9.5 million (present value), with an annual equivalent cost of \$200,000.

Summary of CVP Impacts

- ◆ Should the proposed federal action be fully implemented, 110,000 acres of lands would be permanently idled over the next 10 years. The total economic impacts for the permanently idled lands and the lands remaining in production would be:
 1. The agricultural and support economy of the CVP service area would lose \$470 million in the value of annual industry output;
 2. Annual income in the CVP service area would fall by \$251 million;
 3. The present value of this lost yearly income would be \$6.3 billion;
 4. 9,300 jobs would be lost to the CVP service area.

Total Economic Impacts in the SWP and CVP Service Areas

- ◆ The proposed federal action, if implemented, would idle 155,000 acres of agricultural land.
- ◆ The value of farm output would decrease by \$263 million, causing an additional \$331 million permanent loss in the output of support industries. The \$594 loss in the regional economy would include a loss of nearly 12,000 jobs and \$342 million in personal income.
- ◆ This permanent reduction of the agricultural base would have a present value loss of \$8.5 billion in farm and support industry income.

**Summary of Economic Losses in the San Joaquin Valley Associated
with the Proposed Federal Action**

	SWP Impacts^{1/}	CVP Impacts^{1/}	Total SJV Impacts
<u>Annual Economic Losses</u>			
Revenue Losses (\$1,000,000s)			
On-Farm Losses	\$53.7	\$209.4	\$263.1
Support Industry Losses	\$70.4	\$261.0	\$331.4
Total Losses	\$124.1	\$470.4	\$594.5
Income Losses (\$1,000,000s)			
On-Farm Losses	\$30.3	\$96.8	\$127.1
Support Industry Losses	\$59.9	\$154.6	\$214.5
Total Losses	\$90.2	\$251.4	\$341.6
Employment Losses (jobs)			
On-Farm Losses	540	2,160	2,700
Support Industry Losses	2,050	7,170	9,220
Total Losses	2,590	9,330	11,920
<u>Present Value of Long-Run Economic Losses</u>			
Revenue Losses (\$1,000,000s)			
On-Farm Losses	\$1,342	\$5,235	\$6,577
Support Industry Losses	\$1,760	\$6,525	\$8,285
Total Losses	\$3,102	\$11,760	\$14,862
Income Losses (\$1,000,000s)			
On-Farm Losses	\$783	\$2,426	\$3,209
Support Industry Losses	\$1,497	\$3,859	\$5,356
Total Losses	\$2,280	\$6,285	\$8,565

^{1/} Figures in these columns reflect the additional impacts of the proposed federal action only.

Other Impacts Concerning Both the SWP and the CVP Service Areas

- ◆ The proposed federal action would have numerous impacts beyond income and jobs.
 1. Loss of regional and economic stability due to a shrinking and/or highly risky agricultural base.
 2. Loss of flexibility of grower management decisions — yearly uncertainty of water makes it difficult to determine when and/or if to plant annual crops.
 3. Continued erosion of the competitive advantage of California agriculture in national and world markets.
 4. Reduction of land rents as water cost takes an increasing share of land and water rent.
 5. Lower property values and reduced tax base for farm counties that are already financially strapped.
 6. Adding additional unemployed people to a strained county social service system — the San Joaquin Valley currently has an unemployment rate of 14.1 percent.^{2/} Between 1985 and 1992, the unemployment rate in the Central Valley counties has generally been double the rate in the state as a whole. The combined impacts of the proposed federal action would increase the unemployment rate in the Valley by 1.3%.
 7. Increased financial risk for irrigation districts and possible default on CVP and SWP water payments.
 8. Reduced bond ratings for the San Joaquin Valley counties.
 9. Degradation of resource quality — land and water — in the San Joaquin Valley.
 10. Loss of groundwater aquifer capacity.
 11. Increased well drilling costs and failure of existing wells.
 12. Subsidence of lands over the groundwater aquifers of the San Joaquin Valley.

^{2/} Unemployment for January 1994. Data from US Department of Labor Statistics, Current Population Survey, California Employment Development Department, 1994.